SONY

HD CAMERA ADAPTOR

HDCA-750A

HDVS

MAINTENANCE MANUAL
Volume 1 1st Edition
Serial No. 10001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

Laser Diode Properties

Material	:	InGaAsP
Wave Length	:	1310 nm
Emission duration	:	Pulse modulatuin
Laser output power	:	10 mW (Max)
Beam divergence	:	10° (Max)

CAUTION

The use of optical instruments with this product will increase eye hazard.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for HD Camera Adaptor HDCA-750A. This manual describes the information items necessary when the unit is supplied and installed, items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts lists, assuming use of system and service engineers.

Contents

The following are summaries of all the sections for understanding the contents of this manual.

Maintenance Manual Volume 1

Section 1 Installation

Describes information about connector input/output signals, instance of system configuration and function of internal switches.

Section 2 Service Overview

Describes location of printed circuit board, circuit description, replacement of parts and notes on service.

Section 3 Electrical Alignment

Describes the general information for electrical adjustment and the adjustment procedure of this unit.

Maintenance Manual Volume 2 (Supplied with HDC-750A)

Section 1 Spare Parts

Describes exploded views, parts list, supplied accessories and optional fixtures used in the unit.

Section 2 Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 3 Block Diagrams

Describes overall block diagram and block diagrams for every circuit board.

Section 4 Schematic Diagrams

Describes schematic diagrams for every circuit board and frame wiring.

Section 5 Board Layouts

Describes board layouts for every circuit board.

Relative manual

Besides this maintenance manual the following manual is available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

Section 1
Installation

1-1. Supplied Accessories

Accessories	Sony P/N	Q'ty
Battery attachment assembly	A-7612-224-A	1
MIC connector (CN-1292 board)*1	A-8273-166-A	1
Battery spacer	3-624-183-01	1
Battery adaptor BKP-L551	————————	1
Screw B 2.6 × 5*2	7-621-775-20	1
Precision screws P2.6 × 5*2	7-627-556-58	3
Hexagon-socket bolts 4 × 6*3	7-683-418-04	3
Hexagon-socket bolts 4 × 16*3	7-683-423-04	2
Operation manual	————————	1
Maintenance manual Vol.1	————————	1

*1: Refer to Section 1-4 for installation procedures of MIC connector.
*2: Use when installing the MIC connector.
*3: Use when installing the battery attachment assembly.

1-2. Connectors and Cables

1-2-1. Connector Input/Output Signals

Input/Output Signals

- **Optical connector**

  Based upon BTA S-004A/005A/006A 1.485 Gbps serial
  VIDEO $Y/P_B/P_R$
  RET $Y/P_B/P_R$
  INCOM 2ch
  MIC 2ch/DIGITAL AUDIO (AES/EBU)
  PROMPTER
  CAMERA COMMAND

- **GLK/PROMPTER**

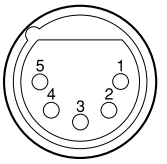
  BNC type 75 Ω, 1.0 Vp-p

Output Signal

- **SERIAL OUT**

  Based upon BTA-S004A
  BNC type 75 Ω, 0.8 Vp-p 1.485 Gbps

INCOM 1/2 (5P FEMALE)

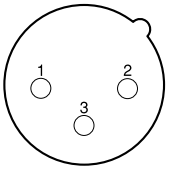


(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	INCOM MIC (Y)	IN	–20 dBu (CARBON MIC)
2	INCOM MIC (X)	IN	–60 dBu (DYNAMIC MIC)
3	GND (PGM)	——	
4	INCOM RECEIVE	OUT	0 dBu
5	PGM	OUT	0 dBu

(0 dBu = 0.775 Vrms)

MIC 1/2 (3P MALE)

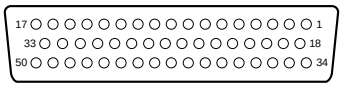


(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	MIC (G)	——	–60 dBu, –50 dBu, –40 dBu, –30 dBu, –20 dBu, selectable High impedance, Balanced
2	MIC (X)	IN	
3	MIC (Y)	IN	

(0 dBu = 0.775 Vrms)

EXT I/O (50P FEMALE)



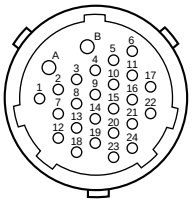
(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	NC		No connection
2	NC		No connection
3	NC		No connection
4	NC		No connection
5	NC		No connection
6	NC		No connection
7	GND	——	
8	TEST	OUT	1.0 Vp-p, Zo = 75 Ω
9	CA VF VIDEO GND	——	GND for CA VF VIDEO
10	CA VF VIDEO	OUT	1.0 Vp-p, Zo = 75 Ω
11	VD	OUT	Negative pulse, 5.0 Vp-p, Low impedance
12	TRACKER T (X)	IN	0/–20 dBu selectable
13	TRACKER R/ PGM GND	——	GND for TRACKER R/PGM
14	INCOM 1 T (X)	IN	–20 dBu (CARBON MIC)
15	INCOM 2 T (X)	IN	–60 dBu (DYNAMIC MIC)
16	INCOM 1 R/ PGM 1 GND	——	GND for INCOM 1 R/PGM
17	INCOM 2 R/ PGM 2 GND	——	GND for INCOM 2 R/PGM
18	NC		No connection
19	AC (H)	OUT	AC 240 V
20	NC		No connection
21	AC (C)	OUT	AC 240 V
22	NC		No connection
23	NC		No connection
24	PANEL DATA	IN	PANEL → CHU SERIAL DATA
25	PANEL DATA	OUT	CHU → PANEL SERIAL DATA

No.	Signal	I/O	Specifications
26	NC		No connection
27	CALL $\overline{\text{ON}}$	IN	H: OFF, L: ON
28	TRACKER T (Y)	IN	–20 dBu
29	TRACKER PGM	OUT	–20 dBu
30	INCOM 1 T (Y)	IN	–20 dBu (CARBON MIC)
31	INCOM 2 T (Y)	IN	–60 dBu (DYNAMIC MIC)
32	PGM 1 (X)	OUT	0 dBu
33	PGM 2 (X)	OUT	
34	NC		No connection
35	NC		No connection
36	NC		No connection
37	NC		No connection
38	NC		No connection
39	NC		No connection
40	VF POWER OFF	OUT	H: ON, L: OFF
41	MAIN POWER ON/OFF	OUT	+8 V: ON, GND: OFF
42	QTV GND	——	GND for QTV
43	QTV	OUT	1.0 Vp-p, 75 Ω
44	STBY DC (+)	OUT	+6.0 Vdc
45	TRACKER T GND	——	GND for TRACKER T
46	TRACKER R	OUT	–20 dBu
47	INCOM 1 T GND	——	GND for INCOM 1
48	INCOM 2 T GND	——	GND for INCOM 2
49	INCOM 1 R (X)	OUT	0 dBu
50	INCOM 2 R (X)	OUT	

(0 dBu = 0.775 Vrms)

VTR (26P MALE)

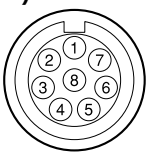


(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
A	VTR UNREG	IN	+10.6 to 17 Vdc
B	UNREG GND	——	GND for UNREG
1	GENLOCK	IN	Sync 0.6 Vp-p, 0 Vdc, Zi = 75 Ω
2	GENLOCK GND	——	GND for GENLOCK
3	G/Y GND	——	GND for G/Y
4	G/Y	OUT	0.7 V, 0 Vdc, Zo = 75 Ω
5	R/P_R	OUT	0.7 V/±0.35 V, 0 Vdc, Zo = 75 Ω
6	R/P_R GND	——	GND for R/P_R
7	B/P_B	OUT	0.7 V/±0.35 V, 0 Vdc, Zo = 75 Ω
8	B/P_B GND	——	GND for B/P_B
9	CH1 MIC (X)	OUT	–20 dBu, Low impedance Balanced
10	CH1 MIC (Y)	OUT	
11	CH1/CH2 MIC GND	——	GND for CH1/CH2 MIC
12	UNREG (+) SENSE	IN	
13	UNREG (–) SENSE	IN	
14	INCOM LINE	IN/OUT	0.5 Vp-p
15	CH2 MIC (X)	OUT	–20 dBu, Low impedance, Balanced
16	CH2 MIC (Y)	OUT	
17	NC		No connection
18	RET VIDEO	IN	1.0 Vp-p, 0 Vdc, Zi = 75 Ω
19	RET VIDEO GND	——	GND for RET VIDEO
20	AUDIO	IN	–6 dBu, 750 Ω/1 kHz
21	RX COMMAND (X)	IN	RS-422
22	RX COMMAND (Y)	IN	
23	TX COMMAND (X)	OUT	RS-422
24	TX COMMAND (Y)	OUT	

(0 dBu = 0.775 Vrms)

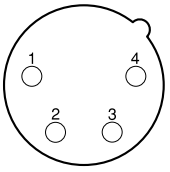
REMOTE (8P FEMALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	TX (+)		HDC SERIAL DATA
2	TX (–)		
3	RX (+)		HDCU/MSU/RCP/CNU/VCS SERIAL DATA
4	RX (–)		
5	TX GND	——	GND for TX
6	POWER (+)	OUT	+12 V, 500 mA (max)
7	POWER (–)	——	GND for +12V
8	NC		No connection
	CHASSIS GND	——	CHASSIS GND

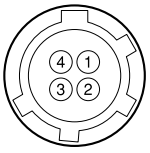
DC IN (4P MALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	GND	——	GND for UNREG
2	NC		No connection
3	NC		No connection
4	EXT UNREG	IN	+10.5 to +17 Vdc

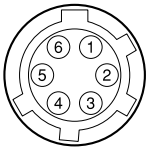
DC OUT (4P FEMALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	GND	——	GND for UNREG
2	GND	——	
3	UNREG	OUT	+12 V dc 200 mA (max)
4	UNREG	OUT	

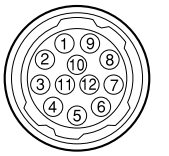
RET CONT (6P FEMALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	INCOM 1 MIC ON/OFF	IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN
2	INCOM 2 MIC ON/OFF	IN	Zi > 10 kΩ ON: GND OFF: OPEN
3	GND	——	
4	RET 3 ON/OFF	IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN
5	RET 1 ON/OFF	IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN
6	RET 2 ON/OFF	IN	Zi ≧ 10 kΩ ON: GND OFF: OPEN

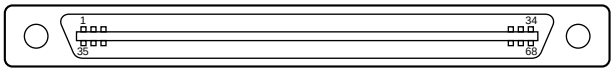
VF (12P FEMALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	BATT IND	OUT	DC: +5 V : indicator lights Zo = 220 Ω
2	UNREG (+12 V)	OUT	DC 10.5 V to 17 V, 2A
3	VF VIDEO (G)	——	GND for VF VIDEO
4	VF VIDEO (X)	OUT	VS 1 V p-p, terminated with 75 Ω DC ±200 mV
5	PEAK ON/$\overline{\text{OFF}}$	IN	Camera DC 0 V : aperture OFF Camera DC +5 V or HIGH : aperture ON
6	NC		No connection
7	RED TALLY	OUT	DC: +5 V : indicator lights Zo = 220 Ω
8	NON-NORMAL	OUT	DC: +5 V : indicator lights Zo = 220 Ω
9	NC		No connection
10	UNREG (GND)	——	GND for UNREG +12 V
11	VTR SAVE	OUT	DC: +5 V : indicator lights Zo = 220 Ω
12	GREEN TALLY	OUT	DC: +5 V : indicator lights Zo = 220 Ω

TO CAMERA (68P MALE)



(EXTERNAL VIEW)

No.	Signal	I/O	Specifications
1	UNREG (G)	——	GND for UNREG
2	UNREG (G)	——	
3	VF UNREG (G)	——	GND for VF UNREG
4	LENS UNREG (G)	——	GND for LENS UNREG
5	UNREG	OUT	+10.5 to +17.0 V
6	UNREG	OUT	
7	VF UNREG	OUT	+10.5 to +17.0 V
8	LENS UNREG	OUT	+10.5 to +17.0 V
9	SCL (CHU)	IN/OUT	IIC interface, 5 Vp-p
10	SDA (CHU)	IN/OUT	IIC interface, 5 Vp-p
11	RM RX DATA (X)	OUT	New command interface
12	RM TX DATA (Y)	IN	
13	RM DATA	——	GND for RM DATA
14	CHU POWER SAVE	OUT	0V: SAVE
15	ADP SYNC GND	——	GND for SYNC
16	ADP SYNC	OUT	Negative pulse, 5 Vp-p
17	NC		No connection
18	VF VIDEO (Y)	OUT	WPL*1: 0.7 V, 0 Vdc, Zo = 75 Ω
19	VF VIDEO (P_B)	OUT	PL*2: ±0.35 V, 0 Vdc, Zo = 75 Ω
20	VF DTL	IN	Negative DTL
21	TEST GND	——	GND for TEST
22	NC		No connection
23	+5.5 V (CHU)	IN	
24	GND (CHU)	——	
25	−5.5 V (CHU)	IN	
26	NC		No connection
27	R CHU VIDEO	IN	0.7 V, 0 Vdc, Zi = 75 Ω
28	NC		No connection
29	G CHU VIDEO	IN	0.7 V, 0 Vdc, Zi = 75 Ω
30	NC		No connection
31	B CHU VIDEO	IN	0.7 V, 0 Vdc, Zi = 75 Ω
32	NC		No connection
33	MIC GND	——	GND for MIC
34	MIC (X)	IN	−60 dBu, Balanced

No.	Signal	I/O	Specifications
35	UNREG (G)	——	GND for UNREG
36	UNREG (G)	——	
37	VF UNREG (G)	——	GND for VF UNREG
38	LENS UNREG (G)	——	GND for LENS UNREG
39	UNREG	OUT	+10.5 to +17.0 V
40	UNREG	OUT	
41	VF UNREG	OUT	+10.5 to +17.0 V
42	LENS UNREG	OUT	+10.5 to +17.0 V
43	SCL (ADP)	IN/OUT	IIC interface, 5 Vp-p
44	SDA (ADP)	IN/OUT	IIC interface, 5 Vp-p
45	RM RX DATA (Y)	OUT	New command interface
46	RM TX DATA (X)	IN	
47	VTR SAVE	IN	0 V: SAVE
48	VF POWER SAVE	OUT	0 V: SAVE
49	SKIN MARKER	OUT	ON: +5 V OFF: 0 V
50	AUTO MARKER	IN	ON: +5 V OFF: 0 V
51	CHU POWER SAVE	IN	0 V: SAVE
52	VF VIDEO (Y) GND	——	GND for VF VIDEO (Y)
53	VF VIDEO (P_R)	OUT	PL*2: ±0.35 V, 0 Vdc, Zo = 75 Ω
54	VF VIDEO(P_BP_R) GND	——	GND for VF VIDEO (P_BP_R)
55	TEST	OUT	0.7 V, 0 Vdc, Zo = 75 Ω
56	NC		No connection
57	UNREG (+) SENSE	OUT	
58	UNREG (−) SENSE	OUT	
59	NC		No connection
60	NC		No connection
61	R CHU VIDEO GND	——	GND for R CHU VIDEO
62	NC		No connection
63	G CHU VIDEO GND	——	GND for G CHU VIDEO
64	NC		No connection
65	B CHU VIDEO GND	——	GND for B CHU VIDEO
66	CHU SEPARATE	OUT	0 V: SEPARATE
67	NC		No connection
68	MIC (Y)	IN	−60 dBu, Balanced

*1 WPL: White peak level
*2 PL: Peak level

(0 dBu = 0.775 Vrms)

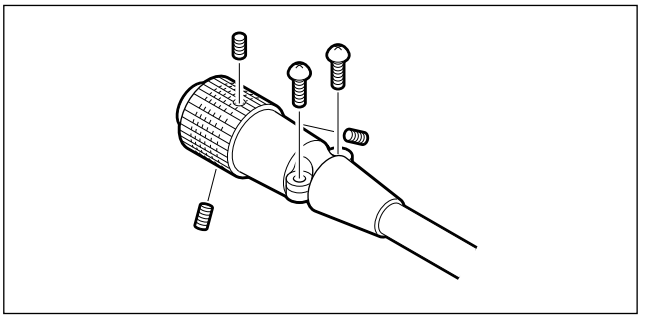
1-2-2. Connection Connectors

Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

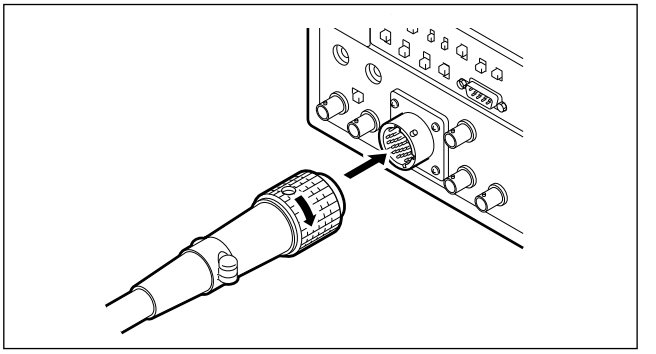
Indication	Connection connector/cable
GLK/PROMPT SERIAL OUT (BNC)	1-569-370-12 Plug, BNC or B-B Cable assembly (1.5 m, option)
VF (12P FEMALE)	1-568-233-11 Plug, 12P Male
RET CONT (6P FEMALE)	1-560-078-31 Plug, 6P Male or HIROSE HR10-7PA-6P equivalent
REMOTE (8P FEMALE)	1-766-848-11 Plug, 8P Male or CCA cable assembly (option) CCA-5-10 (10m), CCA-5-3 (3m)
INCOM 1/2 (5P FEMALE)	1-508-370-11 XLR, 5P Male or ITT Cannon XLR-5-12C equivalent
MIC 1/2 (3P MALE)	1-508-083-00 XLR, 3P Female or ITT Cannon XLR-3-11C equivalent
DC IN (4P MALE)	1-508-362-00 XLR, 4P Female or ITT Cannon XLR-4-11C equivalent or Cable assembly 1-551-577-00 (Supplied with AC-550/550CE)
DC OUT (4P FEMALE)	1-566-425-11 Plug, 4P Male or HIROSE HR10A-7P-4P equivalent
VTR (26P MALE)	1-564-184-00 Plug, 26P Female or Cable assembly (option) HDCZ-10 (10 m)/HDCZ-25 (25 m)

1-2-3. Disassembly of HDCZ Connector

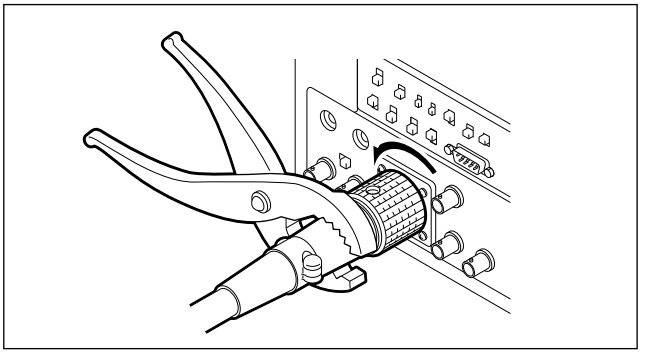
1. Remove the two screws and three setscrews.



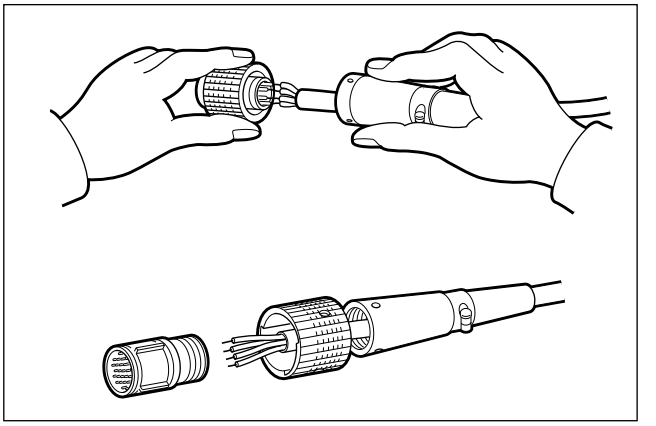
2. Connect the plug to the VTR or camera.



3. Loosen the plug counterclockwise by pliers.

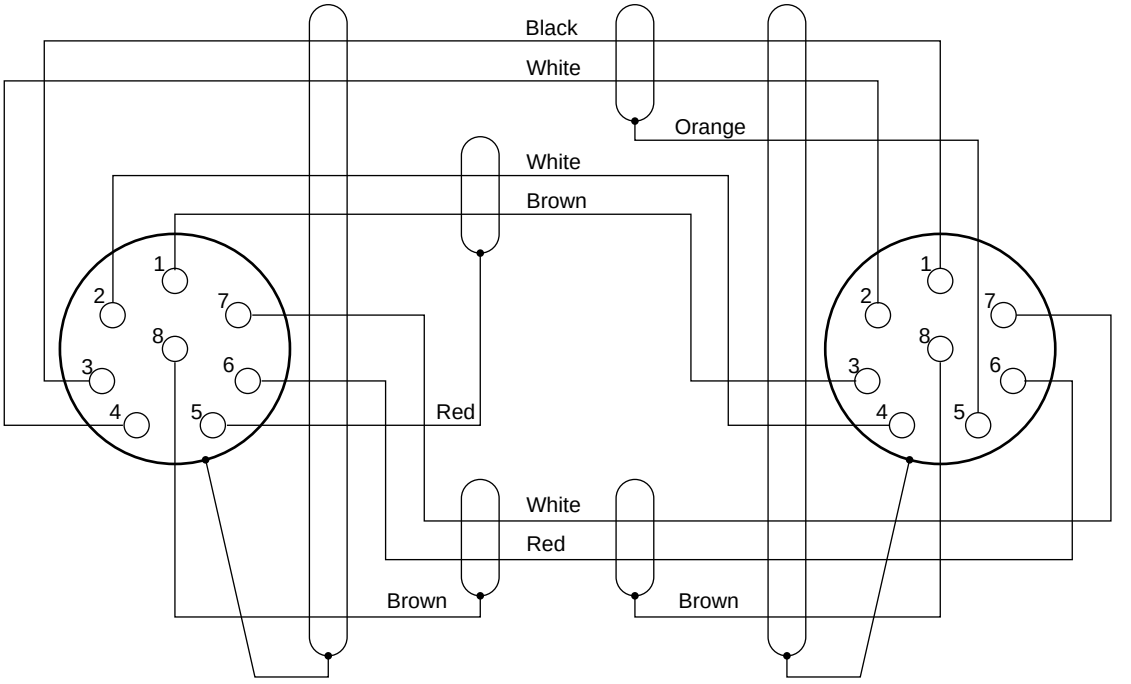


4. Disassemble as illustrated and unsolder.



1-2-4. Wiring Diagrams for Cables

CCA-5 Cable

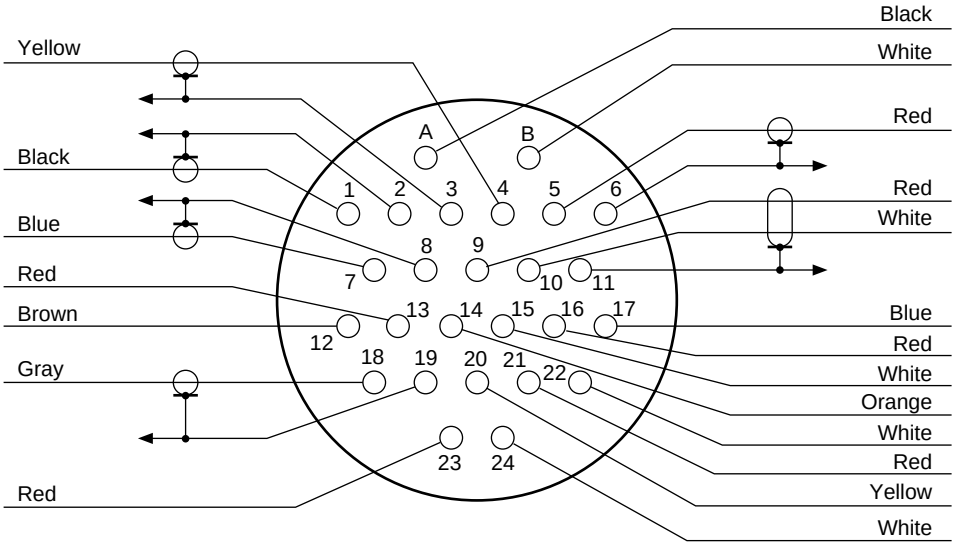


8P Connector (male)
(wiring side)

8P Connector (male)
(wiring side)

HDCZ Cable

26P Connector (female/male)
(wiring side)



1-3. Operating Environment

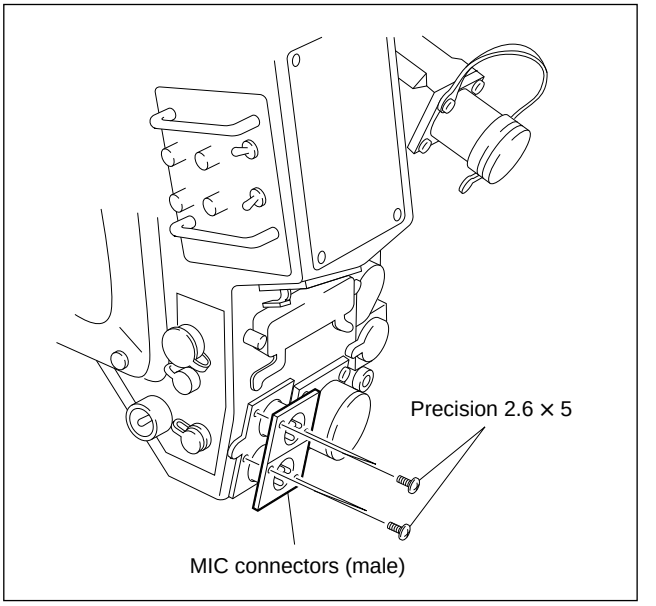
Operating Temperature: −20 ˚C to +45 ˚C
Storage Temperature: −20 ˚C to +50 ˚C
Humidity: No condensation

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temperature room or near the heat source.
  Excessive dust or mechanical vibration.
  Intense magnetic and electric fields.
  A place subjected to direct sunlight or strong light.

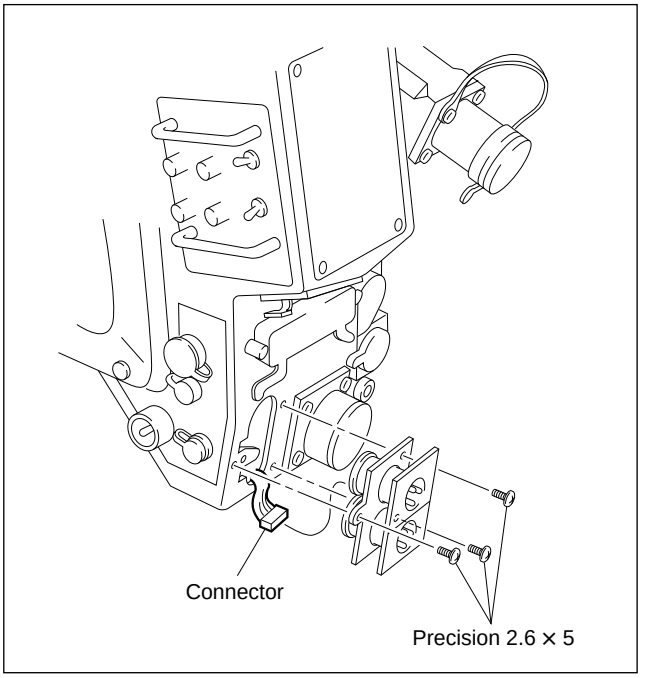
1-4. Installation of MIC Connector (Female)

This unit has been equipped with the male MIC connectors at the factory. The male connectors can replace female connectors supplied with the unit according to use.
To replace proceed as follows.

1. Remove the four screws securing the MIC connectors (male).



2. Remove the three precision screws to pull out the MIC connectors (male).
   Disconnect the connector shown in the illustration.



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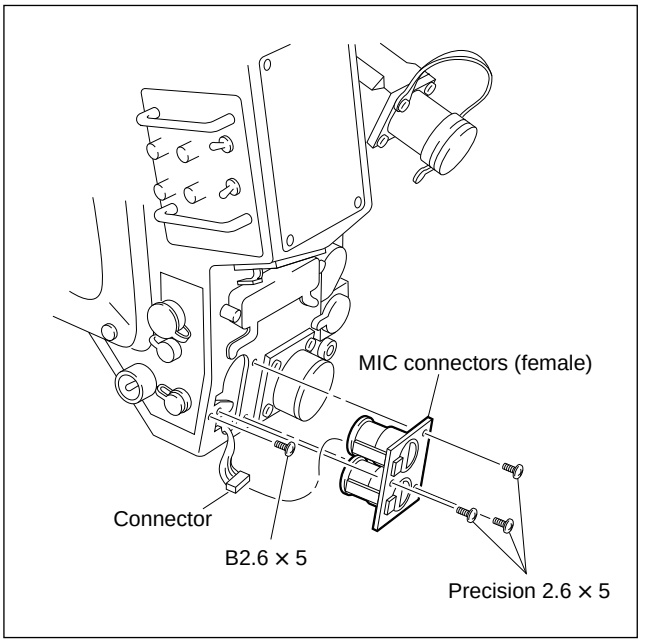
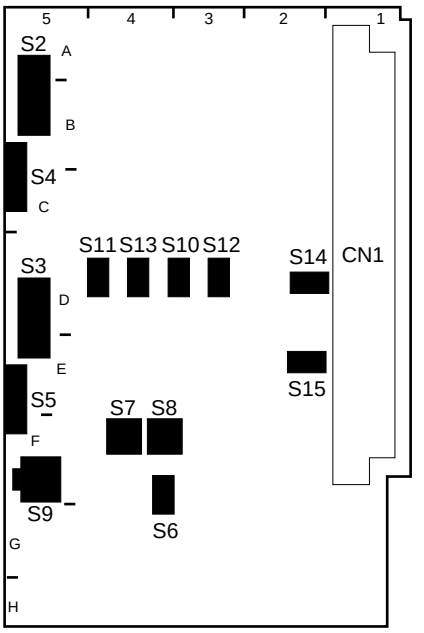
3. Connect the connector to the board on which the female MIC connectors are mounted and install it with the screws removed in the procedure 2 (or supplied screws with the unit). Fill the screw hole with the supplied screw (B2.6 × 5) as shown in the figure.



1-5. Function of Internal Switches

AU-203 Board



AU-203 BOARD (A SIDE)

S2: INCOM1 CM/DYN

S3: INCOM2 CM/DYN

Select according to the type of headset microphone to be connected to the INTERCOM1/2 connector.
CM: Carbon microphone
DYN: Dynamic microphone
Factory-set position: CM

S4: MIC GAIN 1 +/0/–

S5: MIC GAIN 2 +/0/–

Selects the INTERCOM 1/2 audio level to be sent to the HD CCU. (0 dBu = 0.775 Vrms)
+: +6 V dBu
0: 0 dBu
–: –6 dBu
Factory-set position: 0

S6: TRACKER (T) 0/–20

Selects the input level for the TRACKER connector. (0 dBu = 0.775 Vrms)
0: 0 dBu
–20: –20 dBu
Factory-set position: 0

S7

Note

Normally set the switches S7-1, S7-2 and S7-3 to the same mode.

S7-1: TRACKER INCOM1 ON/OFF

Turn ON to add the TRACKER TALK signal for the TRACKER connector to the INCOM RECEIVE output of the INTERCOM1 connector of the camera.
Factory-set position: OFF

S7-2: TRACKER INCOM1 ON/OFF

Turn ON to add the TALK signal for the camera and HD CCU to the TRACKER output.
Factory-set position: OFF

S7-3: TRACKER INCOM1 ON/OFF

Turn ON to add the TRACKER TALK signal for the TRACKER connector to the INCOM1 RECEIVE output for the HD CCU.
Factory-set position: OFF

S7-4: VTR INCOM ON/OFF

Turns ON and OFF the intercom function with the VTR.
Factory-set position: ON

S8

S8-1: TRACKER PGM ON/OFF

Turn ON to add the PGM (program audio) to the TRACKER RECEIVE output of the TRACKER connector.
Factory-set position: OFF

S8-2: TRACKER INCOM2 ON/OFF

Turn ON to add the TRACKER TALK signal for the TRACKER connector to the INCOM RECEIVE output of the INTERCOM2 connector of the camera.
Factory-set position: OFF

S8-3: TRACKER INCOM2 ON/OFF

Turn ON to add the TALK signal for the camera and HD CCU to the TRACKER output.
Factory-set position: OFF

S8-4: TRACKER INCOM2 ON/OFF

Turn ON to add the TRACKER TALK signal for the TRACKER connector to the INCOM2 RECEIVE output for the HD CCU.
Factory-set position: OFF

S9: MIC MONITOR ON/OFF

Set to monitor the microphone input using the INTERCOM connector of the camera. By turning on the switch, the microphone input is added to the INCOM output of the INTERCOM connector.
Factory-set position: OFF

S10: INCOM2 PGM MIX

S11: INCOM1 PGM MIX

S11 and S10 select the output method the INCOM OUT and PGM OUT for the INTERCOM 1/2 connector respectively.

Up: The INCOM OUT and PGM OUT are mixed and mixed signal is output as the INCOM OUT and PGM OUT respectively.

Down: The INCOM OUT and PGM OUT are output separately.

Factory-set position: Up side each

S12: INCOM2 MODE

S13: INCOM1 MODE

S13 and S12 determine the mode of the INTERCOM and PGM volumes for INTERCOM 1/2 connector respectively. These settings are valid only when the S10 (for INTERCOM2) or S11 (for INTERCOM1) is set to up side.

Up: The PGM volume adjusts a mixed ratio of the INTERCOM and PGM outputs. INTERCOM volume adjusts a sound level of the mixed signal.

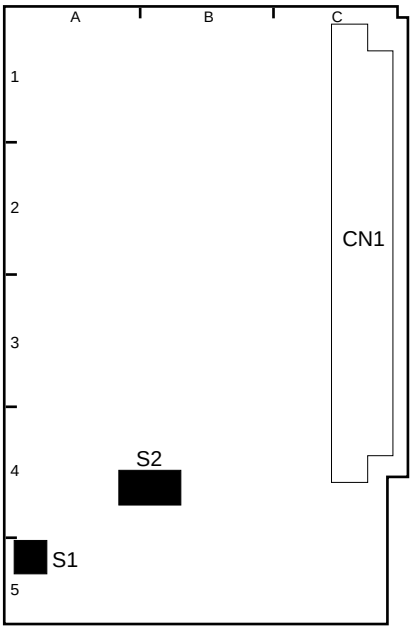
Down: The INTERCOM and PGM volumes adjust each sound level independently.

Factory-set position: Up side each

S14, S15: Optional switches

Always set to NORM.
Factory-set position: NORM

SG-226 Board



SG-226 BOARD (A SIDE)

S1: Reset switch for microcomputer

S2

S2-1, S2-2, S2-3: Setup menu select switches

Setup menu to be displayed on the viewfinder can be selected in the combination of S2-1, S2-2 and S2-3.
( ) in parentheses: Factory-set position

			Setup menu					
S2-1	S2-2	S2-3	Operation	Paint	Maintenance	File	Diag Disp	SYS config
OFF	OFF	OFF	Yes	No	No	No	No	No
ON	OFF	OFF	Yes	Yes	No	No	No	No
OFF	ON	OFF	Yes	Yes	Yes	No	No	No
ON	ON	OFF	Yes	Yes	Yes	Yes	No	No
OFF	OFF	ON	Yes	Yes	Yes	Yes	Yes	No
(ON)	(OFF)	(ON)	Yes	Yes	Yes	Yes	Yes	Yes

S2-4, S2-5: Not used

S2-6: Factory-use switch

Always set to ON.
Factory-set position: ON

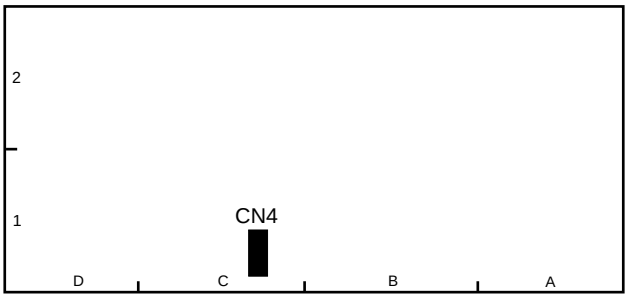
S2-7: Fan ON/OFF switch

Use to forcefully turn on the fan cooling the SDI board. In normal mode, the fan is activated when the HDCU is connected to the camera, or when “Serial Output” item of the Operation menu (of the Setup menu) is set to ON.
ON: Fan is forcefully activated
OFF: Normal mode
Factory-set position: OFF

S2-8: Not used

Always set to OFF.
Factory-set position: OFF

PS-401 Board



PS-401 BOARD (A SIDE)

CN4: Selection of HDCA-750A and HKCA-700

Short: HKCA-700

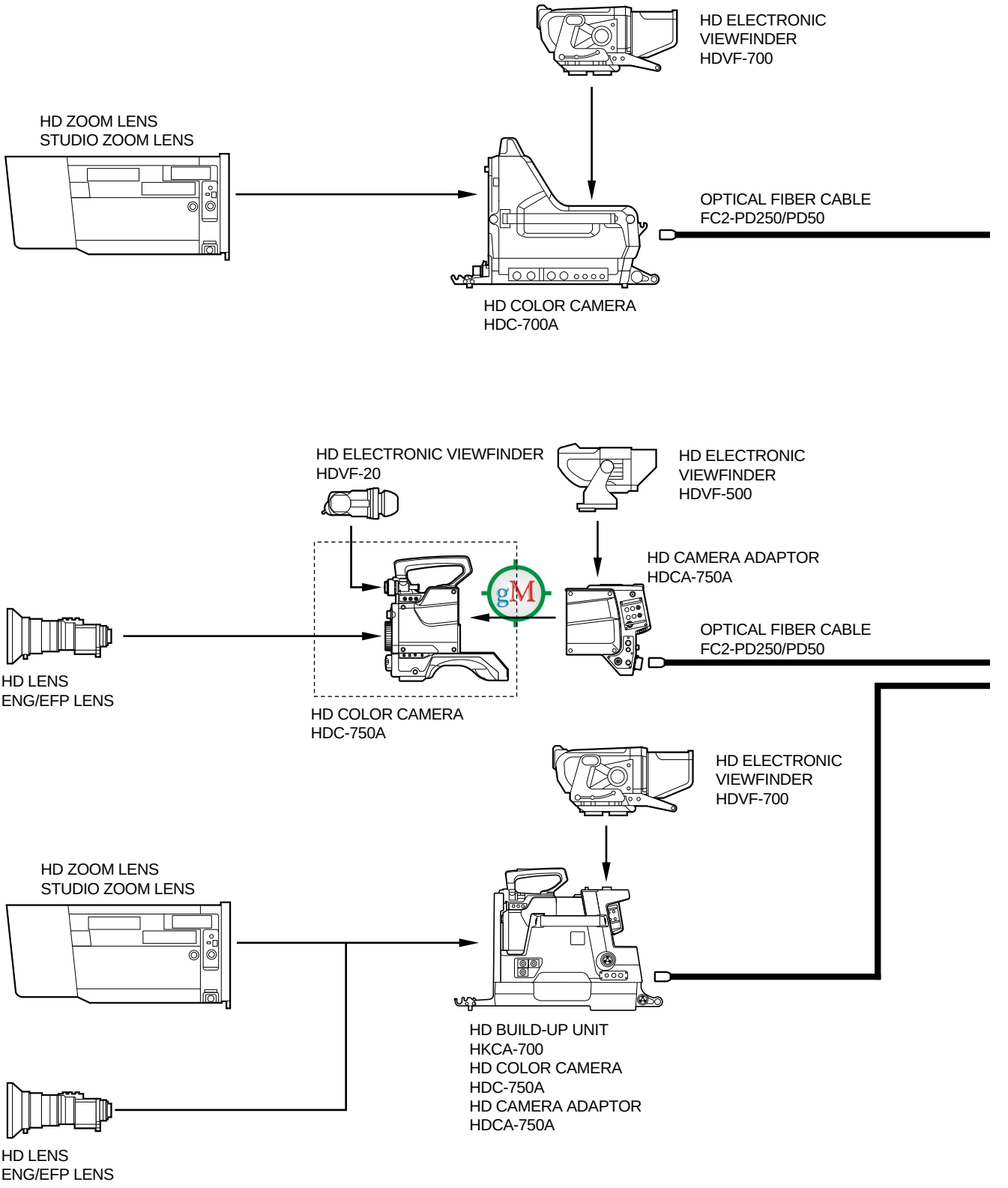
Open: HDCA-750A

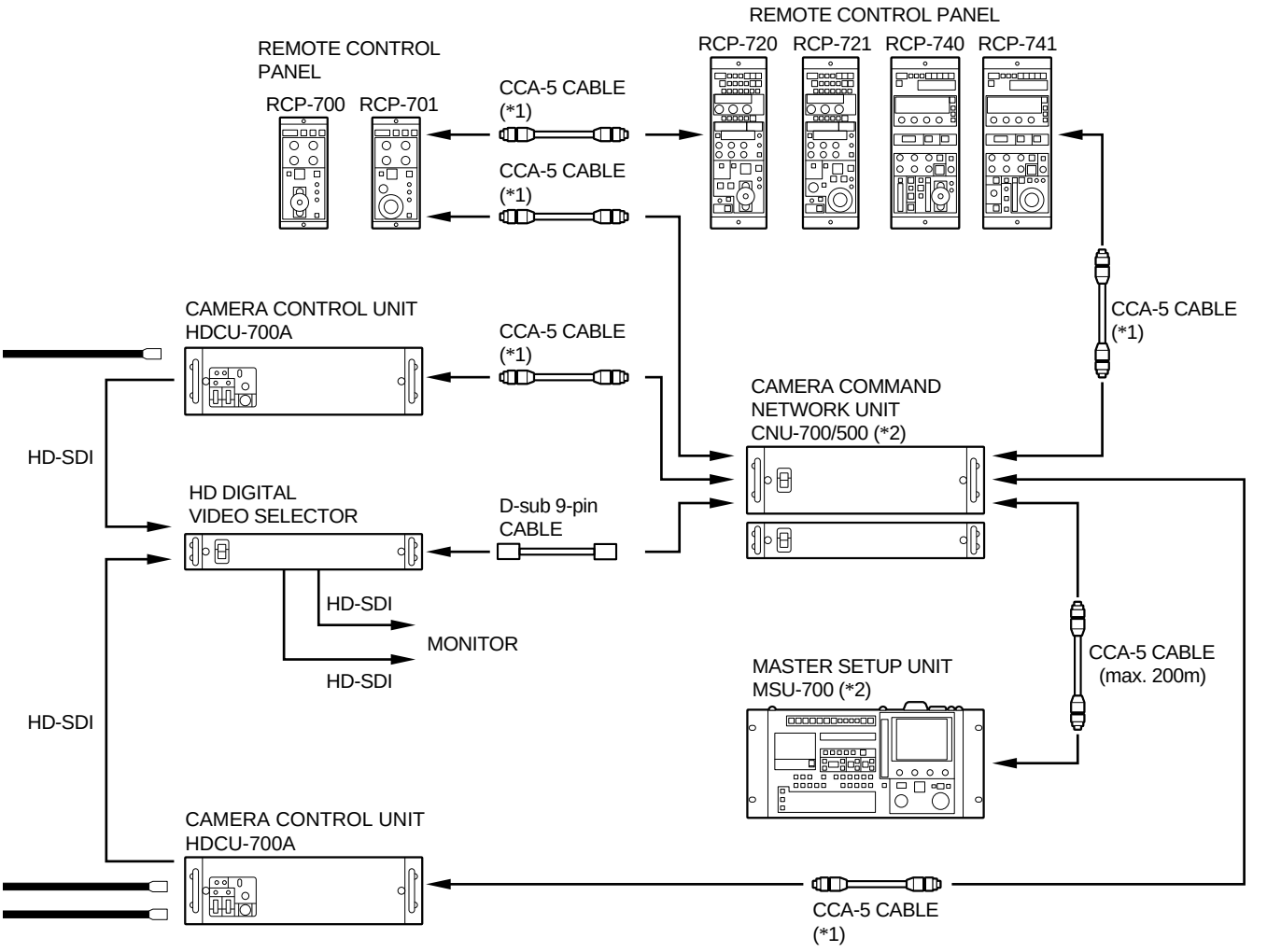
Factory-set position: Open

Note

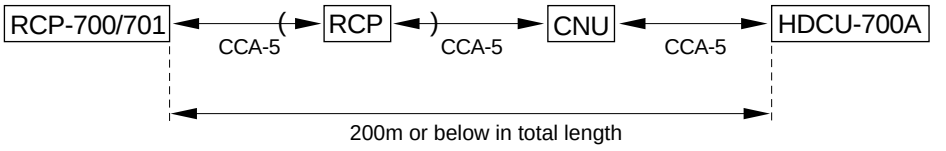
In replacing the PS-401 board with a new one, make sure that no short socket is connected at CN4 of the new board.

1-6. Example of System Configuration





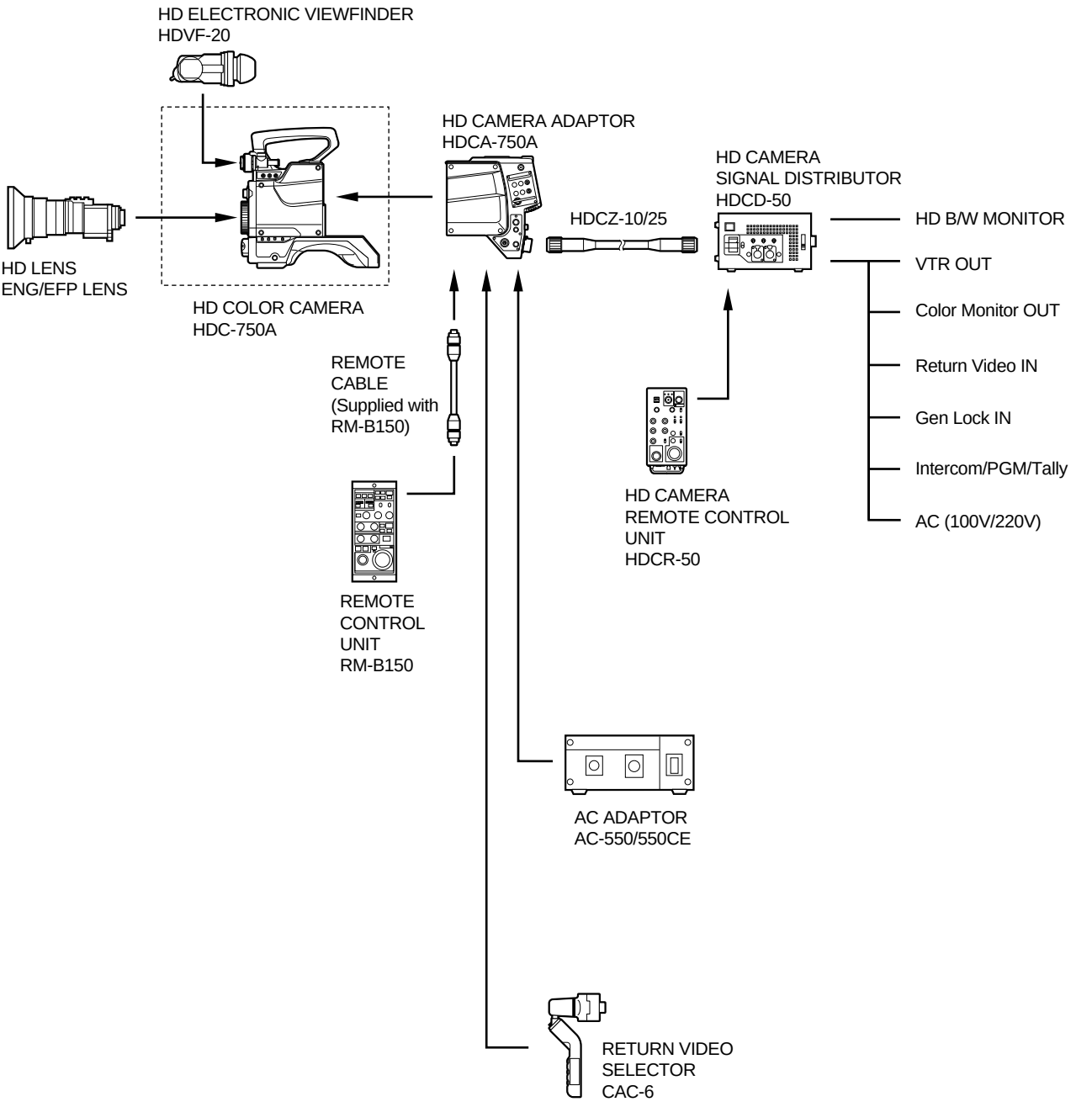
*1: CCA-5 cable length



*2: Installation of HD Master Set-up Kit HKCF-700 is needed.

Optional Accessories

For HDC-700A	SCRIPT HOLDER: BKP-7911/7912
For HDC-750A	ELECTRET CONDENSER MICROPHONE: ECM-MS5
	MICROPHONE: C-74 (Sony P/N 1-542-099-11)
	CRADLE SUSPENSION: CRS-3P
	CARRYING CASE: LC-303SFT
For HDCU-700A	HD DIGITAL RATE CONVERTER: HKCU-701A
	HD ANALOG INTERFACE: HKCU-702


HD ELECTRONIC VIEWFINDER
HDVF-20
HD CAMERA ADAPTOR
HDCA-750A
HD CAMERA
SIGNAL DISTRIBUTOR
HDCD-50
HDCZ-10/25
HD B/W MONITOR
VTR OUT
Color Monitor OUT
Return Video IN
Gen Lock IN
Intercom/PGM/Tally
AC (100V/220V)
HD LENS
ENG/EFP LENS
HD COLOR CAMERA
HDC-750A
REMOTE
CABLE
(Supplied with
RM-B150)
HD CAMERA
REMOTE CONTROL
UNIT
HDCR-50
REMOTE
CONTROL
UNIT
RM-B150
AC ADAPTOR
AC-550/550CE
RETURN VIDEO
SELECTOR
CAC-6

Section 2
Service Overview

2-1. Notes on Service

2-1-1. Extension board

The extension board is available to check every printed circuit board and to perform adjustment.

Extension board	Sony P/N	To be extended
EX-512	A-8273-247-A	VDA-31A
		AU-203
		DAP-5
		SG-226
		Plug-in board for HDC
EX-637	A-8316-134-A	PS-400

2-1-2. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

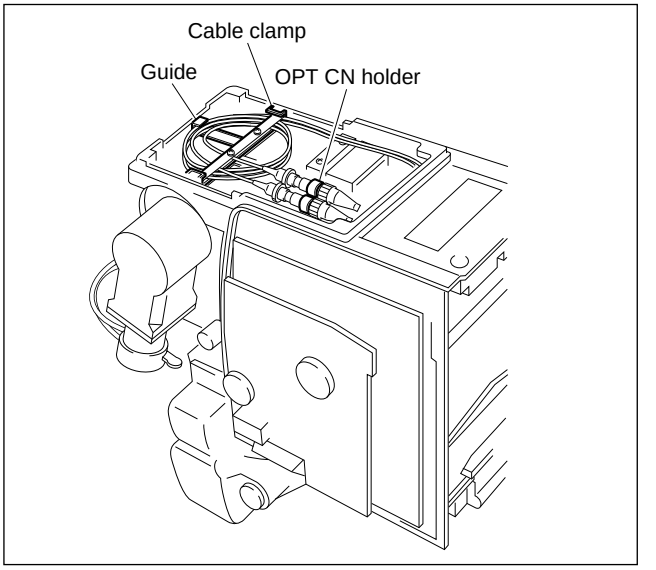
4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	μF	uF
Inductance	μH	uH
Resistance	Ω	Abbreviation
Temperature	˚C	XXX-DEG-C

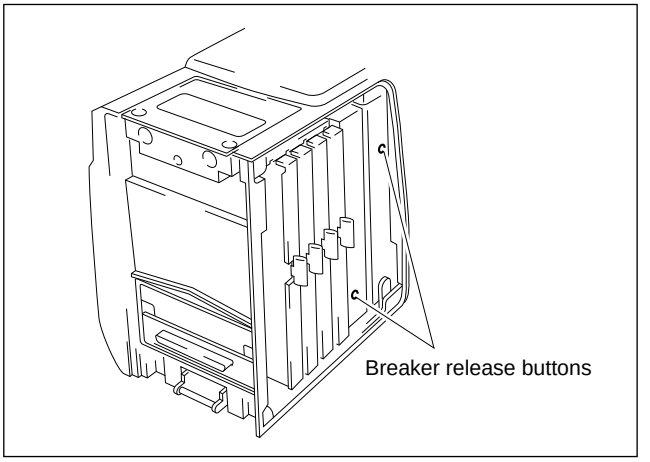
2-1-3. Note on Optical Connector Cable

Optical connector cables used in the unit are very fragile. So do not bend or yank in handling. This causes a break in the cable.
When installing the optical connector cable in the unit, place the cables around the guide gently so that they are not under stress and clamp them with the cable clamp and the OPT CN holder.



2-1-4. Reset of Breaker

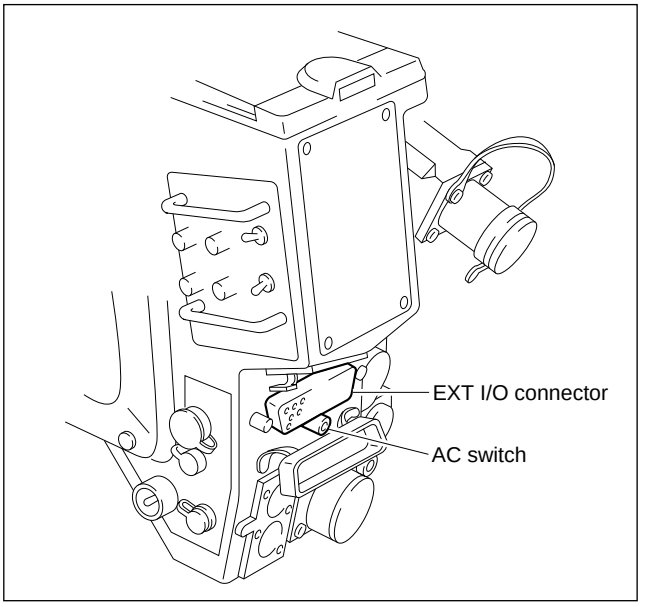
Excessive current in the internal circuitry will trip the internal circuit breaker regardless of causes. If the circuit breaker trips once, check the circuit or block concerned, and then press the breaker release buttons of the PS-400 board and PS-401 board. If there is no trouble, the power to the unit will be turned on.



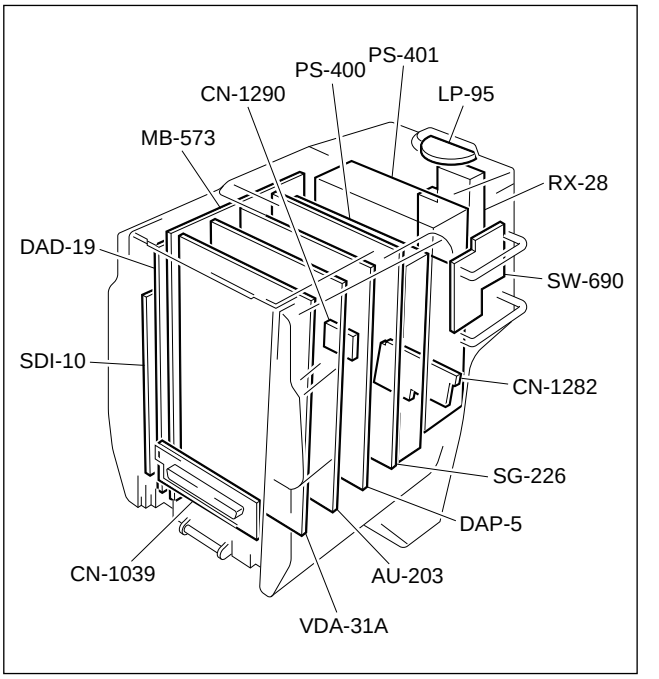
2-1-5. Note on AC Switch

WARNING

Do not push the AC switch as shown below during servicing if the unit is energized with the EXT I/O connector opened. If pushing the AC switch carelessly, you may get shock hazards by the passage of AC 240 V through EXT I/O connector.



2-2. Location of Printed Circuit Boards



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2-3. Removal of Cabinet

CAUTION

The power assembly will go very hot during operation. If you touch the power assembly, there is some danger to get burned. When you service the power assembly or peripheral circuit, allow a few minute after powering off until the inside cools off.

To remove side panel

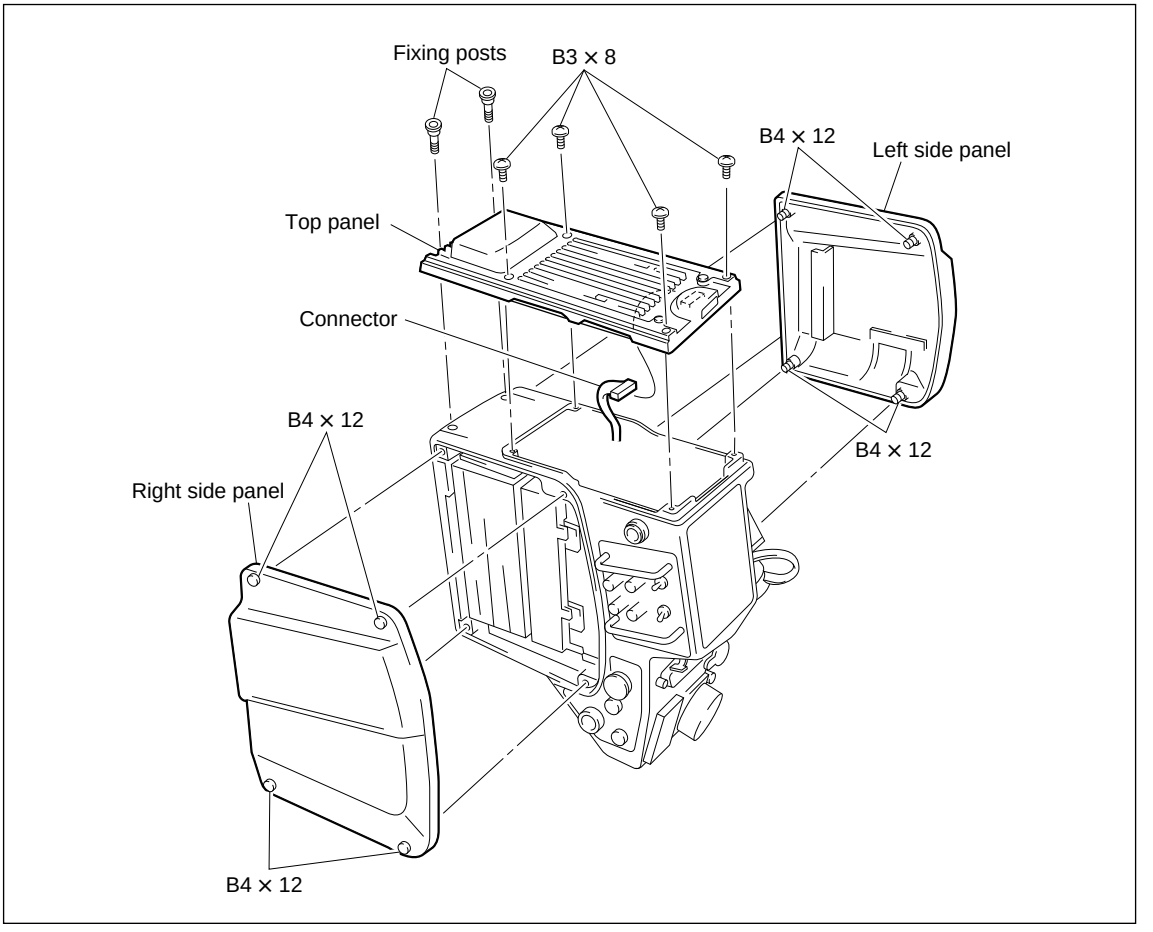
Loosen the four screws to remove the side panel respectively.

To remove top panel

Remove the four screws and the two fixing posts, and disconnect the connector as shown below.

Note

In installing the top panel, care should be taken to see that the optical connector cable is not caught between the chassis and top panel.



2-4. Circuit Description

VDA-31A board

The R, G and B video signals, for which camera processing is complete, are sent from the IE-44 board of the HDC-750A. They are passed through the LPF and sent to the matrix circuit to create the $Y/P_B/P_R$ signals. Either of R/G/B signals, $Y/P_B/P_R$ signals or RET ($Y/P_B/P_R$) signals is selected as a VTR output. Selected signal is passed through the cable compensation circuit (cable length of 25 m or 50 m selectable), to which the SYNC is added and is then output via the 75-ohm driver to the VTR connector. Either of camera R/G/B/Y signals or RET (Y) signal is selected for monitoring. Two kinds of zebra signals, character signal, various cursor signals and VF detail signals are mixed with the selected signal. The resultant signal is passed through the 4:3 modulation circuit, to which the SYNC is added, and is then output via the 75-ohm driver to the viewfinder or the TEST OUT connector on the camera.
When the camera is used alone, the camera signal or VTR playback signal is selected by the VTR RET ON signal. And selected signal is output through the above driver. The VDA-31A board has the diagnosis circuit, too.

DAD-19 board

The DAD-19 board performs analog-to-digital and digital-to-analog conversions and transmitting/receiving of the parallel digital signal for communication in digital form. Parallel-to-serial conversion is performed by the SDI-10 board.

Transmitting system:

- The Y signal is split into two paths and each signal is analog-to-digital converted by IC5 and IC15 using 37-MHz clock and its inverted clock signals respectively Then the two digital Y signals are multiplexed at 74-MHz rate by IC11.
- The P_B/P_R signals are analog-to-digital converted at 37-MHz rate by IC25 and IC39 respectively and are then multiplexed by IC22.
- After that the $Y/P_B/P_R$ signals are formatted for communication in digital form by IC21 and are then sent to the SDI-10 board.
- The intercom audio and microphone audio signals are multiplexed by IC21 format IC.
- The camera command signal is multiplexed by IC21 format IC.

Receiving system:

- IC27 separates the following signals from the parallel-to-digital signal sent from the SDI-10 board.
  $Y/P_B/P_R$ video signals (CCU RET)
  Intercom audio and program audio signals
  CCU command
  Synchronizing signal
- The Y signal is digital-to-analog converted at 74-MHz rate and the P_B and P_R signals are separated each other by IC20 and are then digital-to-analog converted at 37-MHz rate by IC19 and IC33 respectively.
- The prompter signal sent from the HD CCU is decoded by IC51 and IC52 and is digital-to-analog converted by IC47.

SDI-10 board

The SDI-10 board converts the parallel $Y/P_B/P_R$ signal multiplexed by the DAD-19 board to a serial digital signal and outputs it from the SERIAL OUT connector. And SDI-10 board also converts the serial digital signal to an optical signal and outputs it to the HD CCU.
The serial digital signal input from the RX-28 board is separated from clocks and is converted to a parallel digital signal. The converted signal is then output to the DAD-19 board.

RX-28 board

The optical signal transmitted from the HD CCU is converted to an electric signal by the RX-28 board and is output to the SDI-10 board. And the photo-reception level is detected by the RX-28 board and the detection value is output to the SDI-10 board.

AU-203 board

The AU-203 board consists of the following circuits:

- Two intercom input amplifiers
- Two microphone input amplifiers
- Power supply for the above input amplifiers
- Two intercom receiving output amplifiers
- Two PGM output circuits
- TRACKER input/output circuit
- VTR intercom circuit
- Buffer circuit for AES/EBU
- Earphone output circuit
- Diagnosis circuit

The input signal at the INCOM connector is converted to −20 dBu in level and is output to the DAP-5 board, after the microphone selection (carbon or dynamic microphone) is made and the microphone level +6 dB, 0 dB or −6 dB is selected.

The input signal at the MIC connector is also converted to −20 dBu in level and is output to the DAP-5 board, after the microphone level −20 dB, −30 dB, −40 dB, −50 dB, or −60 dB is selected. The same signal is output to the VTR connector in parallel. The phantom power is always supplied to the MIC connector on the front of the HDC-750A. A microphone connected to the MIC connector at rear of the HDCA-750A is selectable from the microphone without power, AB powering or phantom microphone.

The intercom receiving signal is adjusted in level by EVR, with which the PGM and TRACKER signals are mixed, and is then output through the buffer.

The PGM signal is adjusted in level by EVR, with which the intercom signal is mixed, and is then output through the output amplifier.

DAP-5 board

The intercom signals and microphone signals in two channels each, which are sent from the AU-203 board, are analog-to-digital converted by the DAP-5 board and are output via the DAD-19 board to the HD CCU.

The digital audio signals sent from the DAD-19 board is converted to analog intercom signals and analog program signals in two channels each and are output to the AU-203 board.

The DAP-5 board is equipped with the PLL circuit to synchronize the video signal with clocks as reference during analog-to-digital or digital-to-analog conversion. In addition, the DAP-5 board has the detection circuit to detect the connection status with the HD CCU, standby intercom circuit, interface circuit with the viewfinder and diagnosis circuit.

SG-226 board

The SG-226 board consists of the control system circuit including the microcomputer which is the heart of control system and pulse generators.

Control system circuit:

- Outputs various control signals to each circuit board.
- Outputs the status signal or diagnosis data as a character data from the character generator.
- Interfaces various control data with a remote control unit such as RCP or MSU, camera control unit HDCU-700A and camera head unit HDC-750A.

Pulse generator:

- Generates various pulses as the reference of the VCO (74.25 MHz or 74.175 MHz) on the circuit boards. This pulse generator synchronizes the HD CCU or external sync signal input.
- Generates various marker signals.
- Stores the oscillation frequency, its adjustment data and phase adjustment data in the EEPROM on the SG-226 board.

2-5. Self-Diagnosis

The HDCA-750A has a diagnosis mode used for self-diagnosis of every plug-in board. Refer to Section 3-1-5 “Diag Disp Menu” of HDC-750A maintenance manual volume 1 for details.

2-6. Disconnecting/Connecting Flexible Card Wire

The two flexible card wires are used between the MB-573 board and CN-1039 board. Take care not to bend forcedly these flexible card wires. This shorten the wire life.

Disconnecting

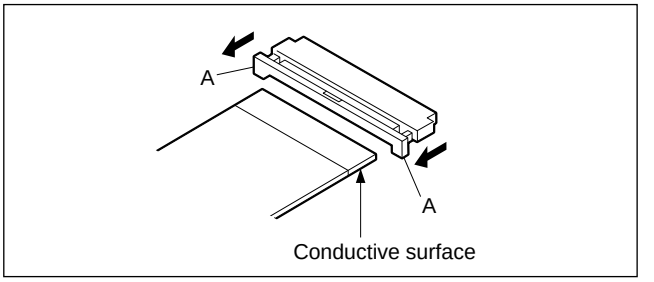
1. Turn off the power.
2. Slide portions A in the direction of the arrow to unlock and pull out the flexible card wire.

Connecting

Notes

- Be careful not to insert the flexible card wire obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

1. Slide portions A in the direction of the arrow and insert the flexible card wire as far as it will go with the conductive surface down.
2. Slide portions A in the reverse direction to lock.



2-7. Replacement of Fan

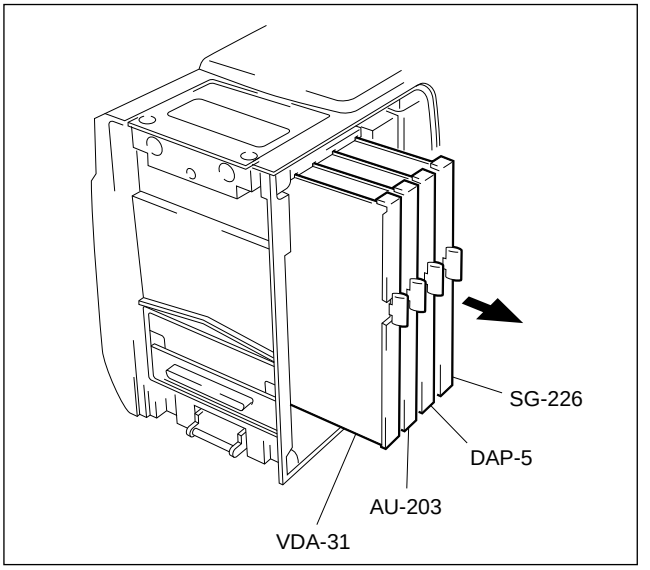
CAUTION

If the fan is out of order, the inside temperature of the unit will rise. Touching the inside in this state may cause a burn. When replacing the fan, allow a few minute after powering off until the inside cools off.

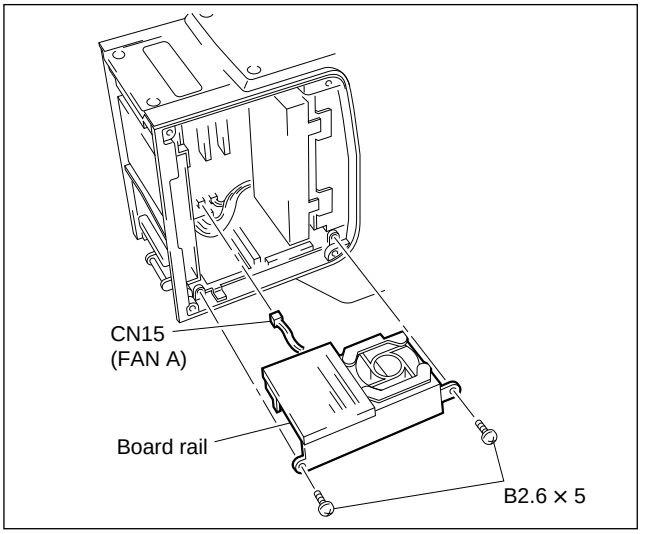
2-7-1. Base Chassis Fan

When replacing the fan, replace the danping plate at the same time.

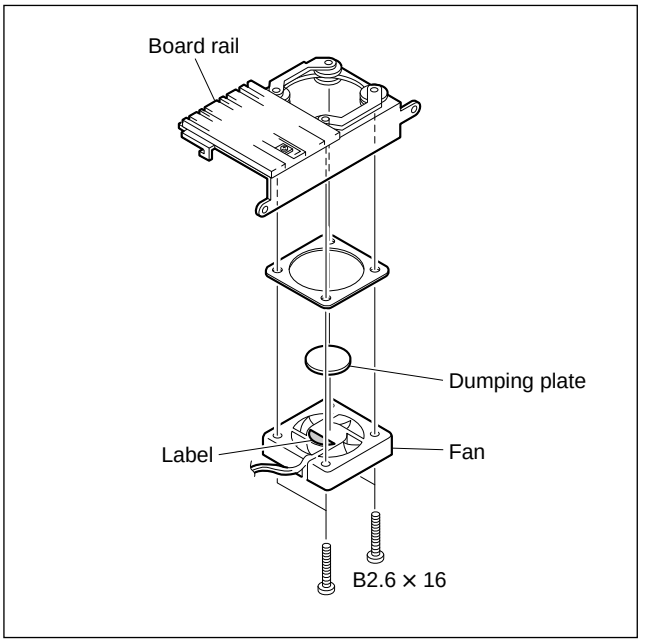
1. Remove the right side panel referring to Section 2-3.
2. Remove the four plug-in boards.



3. Remove the two screws to remove the board rail. Disconnect the connector CN15 (FAN A) from the MB-573 board.



4. Remove the four screws to remove the fan.

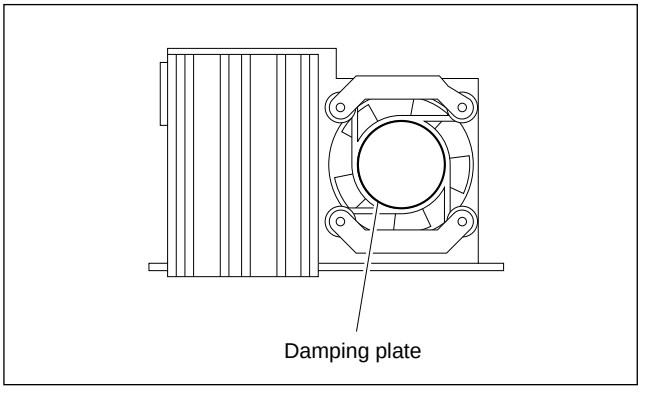


5. Put a new danping plate onto a new fan.
   Note at installation
   Put the danping plate onto the fan with the label side up as shown in the above figure.

6. Install the fan in the reverse order of removal.

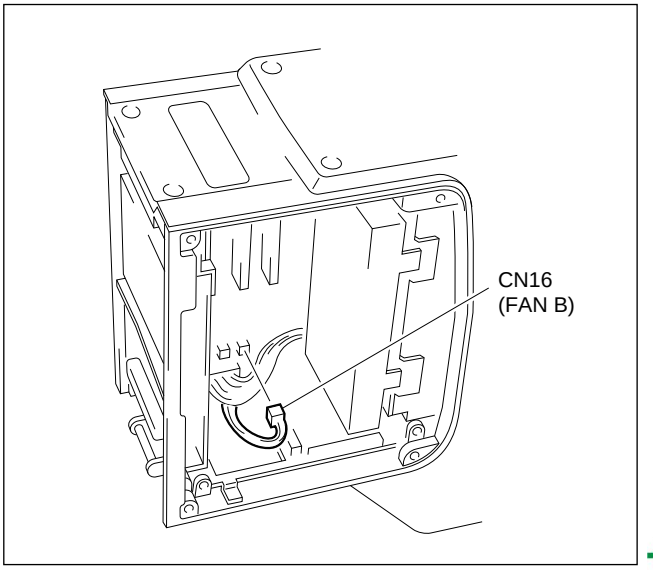
Note at installation

Install the fan with the damping plate side up to the board rail.

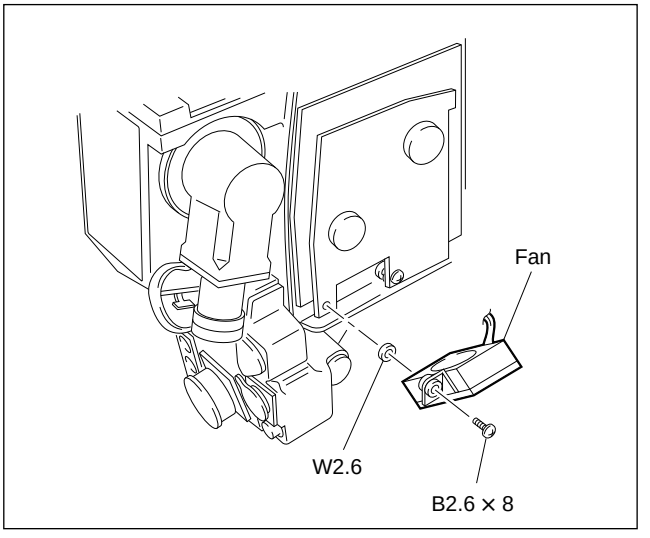


2-7-2. SDI Fan

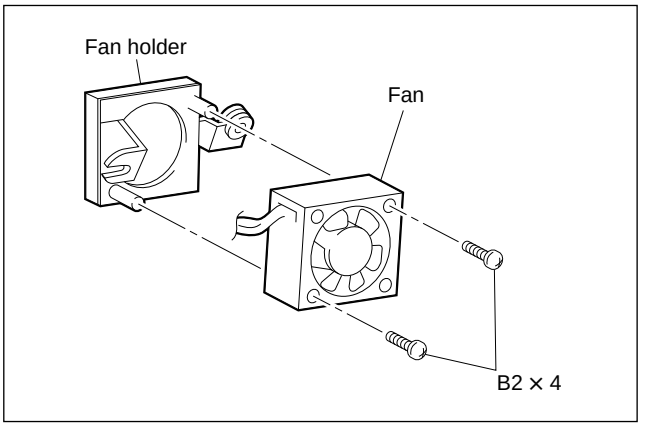
1. Remove the both side panels referring to Section 2-3.
2. Remove the plug-in boards and board rail carrying out procedures 2 and 3 in Section 2-7-1 “Base Chassis Fan”.
3. Disconnect the connector CN16 (FAN B) from the MB-573 board.



4. Remove the screw securing the fan to the unit.



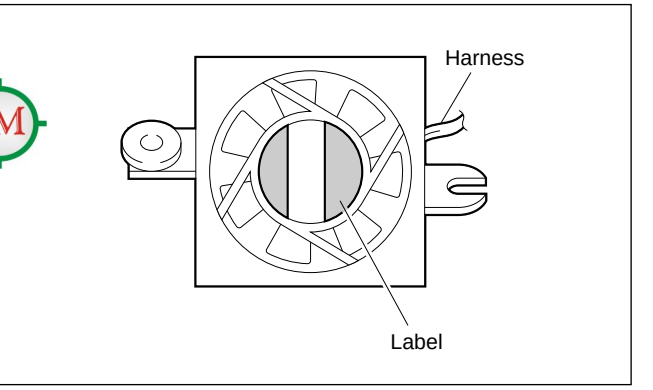
5. Remove the two screws to remove the fan from the fan holder.



6. Install a new fan in the reverse order of removal.

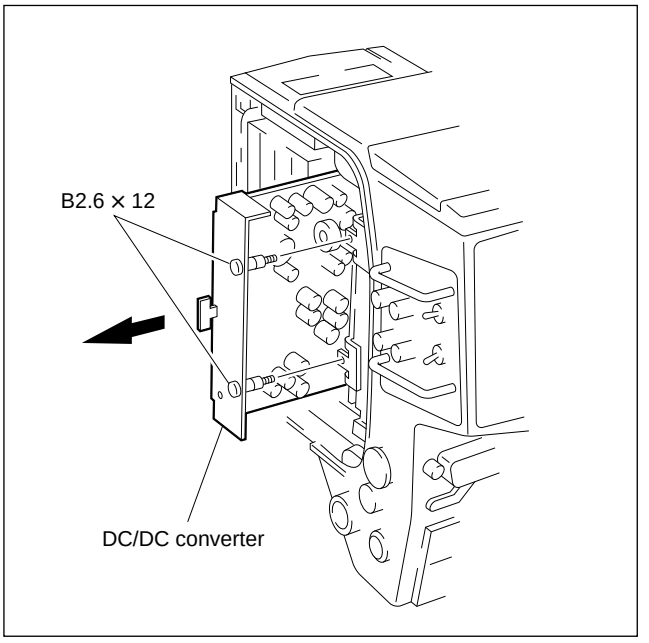
Note at installation

Install the fan to the fan holder with care so that the label faces toward you.



2-8. Replacement of DC/DC Converter Unit (PS-400 Board)

1. Remove the right side panel referring to Section 2-3.
2. Remove the two screws to pull out the DC/DC converter unit.



3. Install a new DC/DC converter unit in the reverse order of removal.

2-9. Replacement of AC/DC Converter Unit

CAUTIONS

- To avoid electric hazards, be sure to turn off the power during replacement. To turn off the power, disconnect the optical cable or the cable connected at the DC IN connector in addition to turning off the power switch.
- The power assembly will go very hot during operation. If you touch the power assembly, there is some danger to get burned. When you service the power assembly or peripheral circuit, allow a few minute after powering off until the inside cools off.

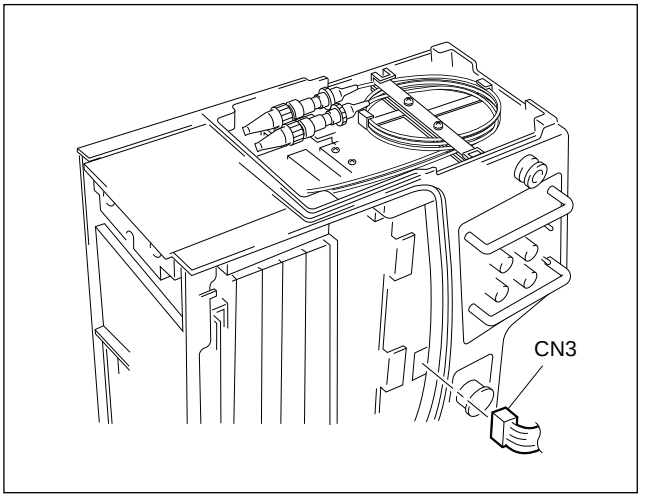
2-9-1. Replacement of PS-401 Board

When replacing the PS-401 board, be sure to disconnect a short socket at CN4 on a replacement PS-401 board. If the short socket remains connected, no power will be supplied because the unit is put into the standby mode. For details, refer to Section 1-5.

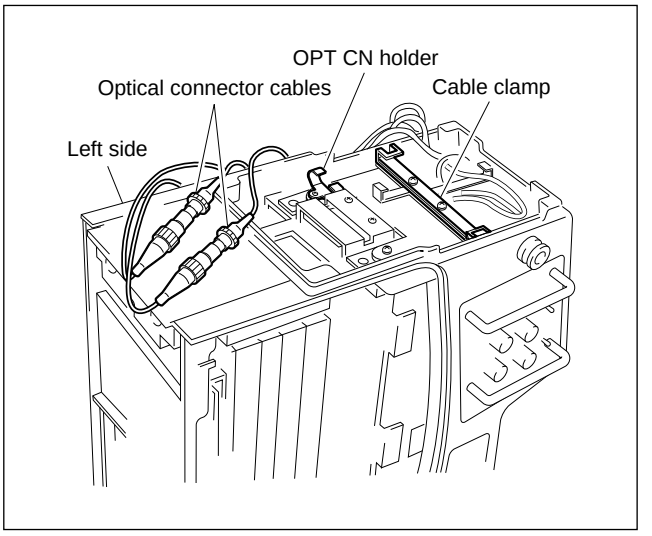
Note

Optical connector cables used in the unit are very fragile. So do not bend or yank in handling. This causes a break in the cable.
When installing the optical connector cable on the unit, refer to Section 2-1-3.

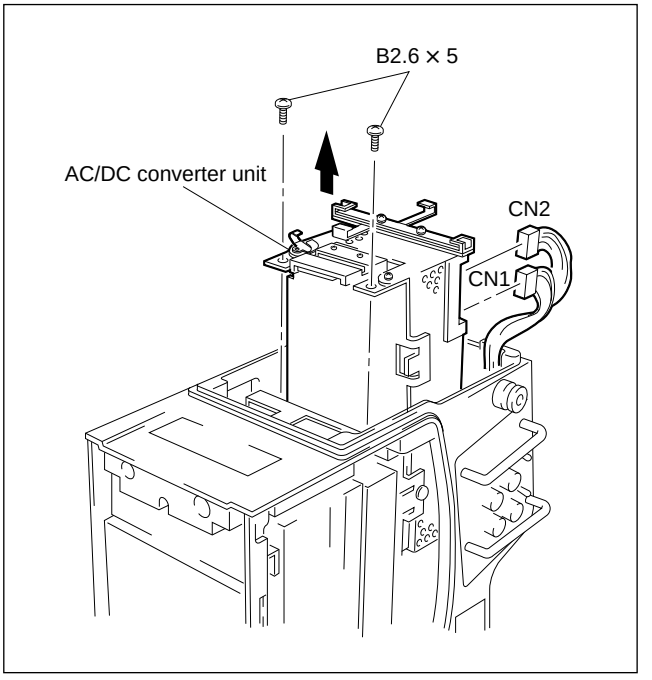
1. Remove the top and both side panels referring to Section 2-3.
2. Remove the DC/DC converter unit referring to Section 2-8.
3. Disconnect the connector CN3 from the PS-401 board.



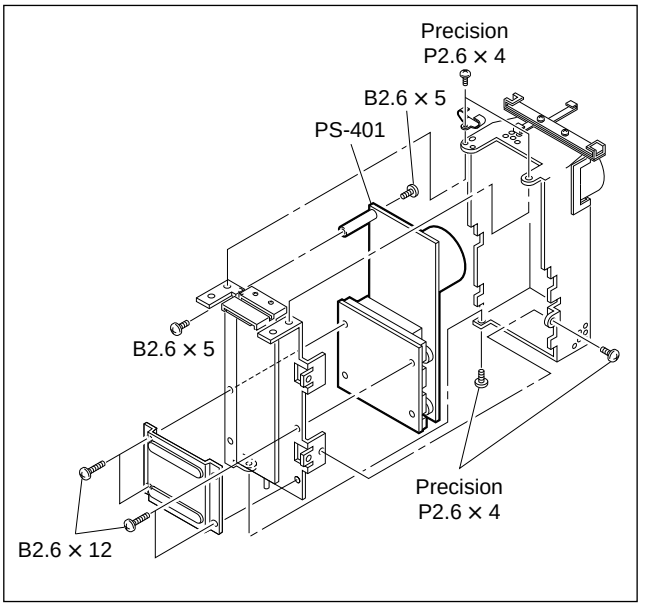
4. Unfasten the optional connector cables from the cable clamp and OPT CN holder and put them aside to the left side of the unit.



5. Remove the two screws to pull out the AC/DC converter unit. Disconnect the two connectors.



6. Remove the ten screws to remove the PS-401 board.



7. Install a new board in the reverse order of removal.

2-9-2. Action Needed After Replacing Heat Plate Assembly

When replacing the heat plate assembly in the AC/DC converter unit, apply silicon compound to a new heat plate assembly.

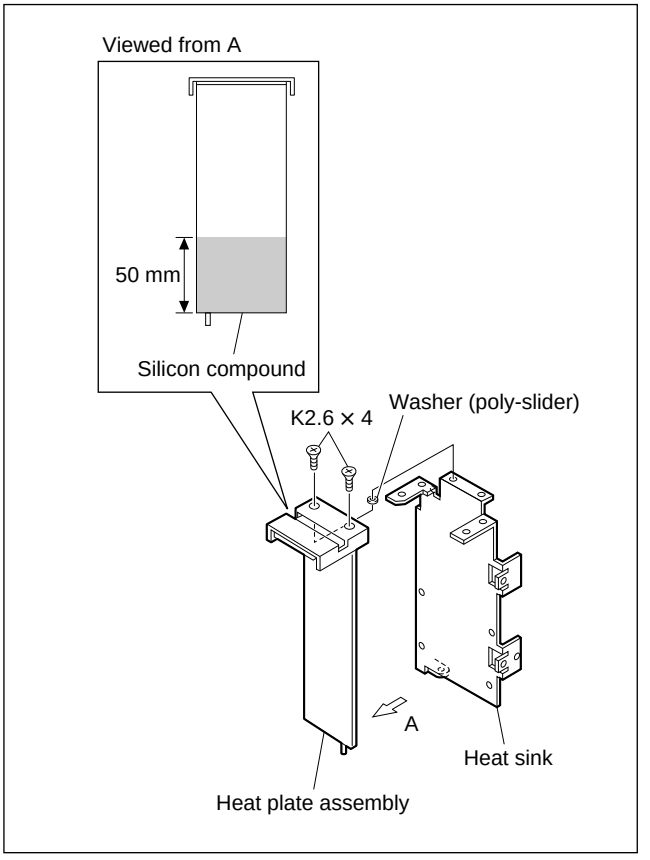
Recommended silicon : Silicon compound
(Sony P/N : 7-662-006-02)

1. Remove the PS-401 board referring to Section 2-9-1.
2. Remove the two screws to remove the heat plate assembly from the heat sink, and replace it.

   Note

   Take care not to lose the washer (poly-slider).
   If replacing, be sure to use the specified one shown below.
   Poly-slider (ϕ3, t = 0.25) : Sony P/N 3-701-439-1X

3. Apply a light coating of silicon compound as shown in the figure.



2-10. Replacement of Circuit Board

2-10-1. Note on Replacement of Parts

Every electrical part mounted on the SDI-10 and RX-28 boards cannot be replaced. If there is any defective part, replace the board itself.

2-10-2. Description on EEPROM Data

The table below gives the stored data of EEPROM on every printed circuit board.

Board	Ref.No.	Stored data
VDA-31A	IC803	Board name
DAD-19	IC59	Board name
AU-203	IC17	Board name
DAP-5	IC7	Board name
SG-226	IC19	SG-226 adjustment data, Board name
MB-573	IC1	Board name

Note

The IC listed above cannot be replaced because it is the EEPROM that is storing data inherent in the board. The part number listed in Section 1 “Spare Parts” of HDC-750A maintenance manual, volume 2 is for EEPROM which is not programmed. If replacement is needed, consult your local Sony Sales Office/Service Center.

2-10-3. Adjustment after Replacement of Board

When replacing some electrical parts on the circuit board, or the circuit board itself, be sure to perform the following adjustments after replacement. If no adjustment item is listed, no adjustment is required.

Board/Block	For Part Replacement	For Board Replacement
VDA-31A (DU-24)	3-3. VDA-31A Board Adjustment	3-3-2. RGB Level Adjustment 3-3-3. $Y/P_R/P_B$ Adjustment
DAD-19	3-4. DAD-19 Board Adjustment	3-4-1. A/D Gain, Clamp Level Adjustment 3-4-2. RET VIDEO D/A Gain Adjustment
AU-203	3-5. Audio System Adjustment	3-5. Audio System Adjustment
DAP-5	——	——
SG-226	——	——
SDI-10	——	——
RX-28	——	——
MB-573	——	——
PS-400	——	——
PS-401	——	——

2-10-4. Note on Replacement of PS-401 Board

When replacing the PS-401 board, be sure to disconnect a short socket at CN4 on a replacement PS-401 board. If the short socket remains connected, no power will be supplied because the unit is put into the standby mode. For details, refer to Section 1-5.

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2-10-5. Replacement of SDI-10 Board

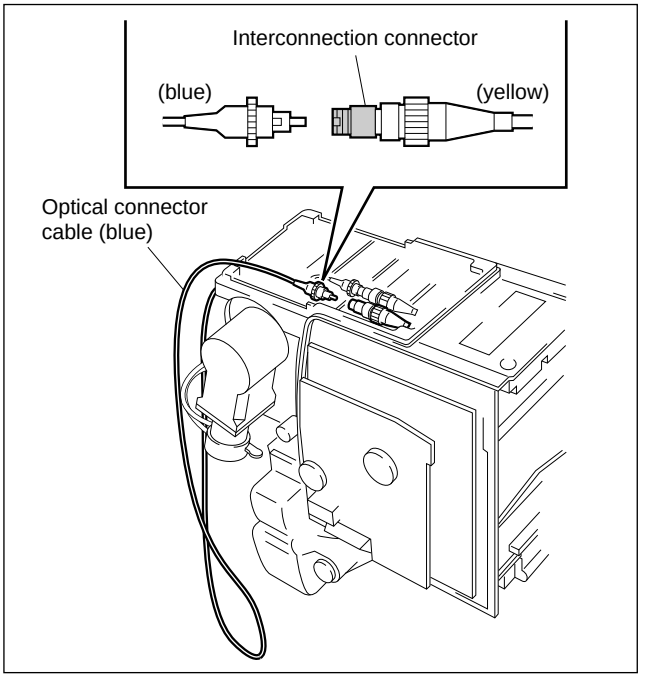
Notes

- Every electrical part mounted on the SDI-10 board cannot be replaced. If there is any defective part, replace the board itself.
- Optical connector cables used in the unit are very fragile. So do not bend or yank in handling. This causes a break in the cable. When installing the optical connector cable in the unit, refer to Section 2-1-3.

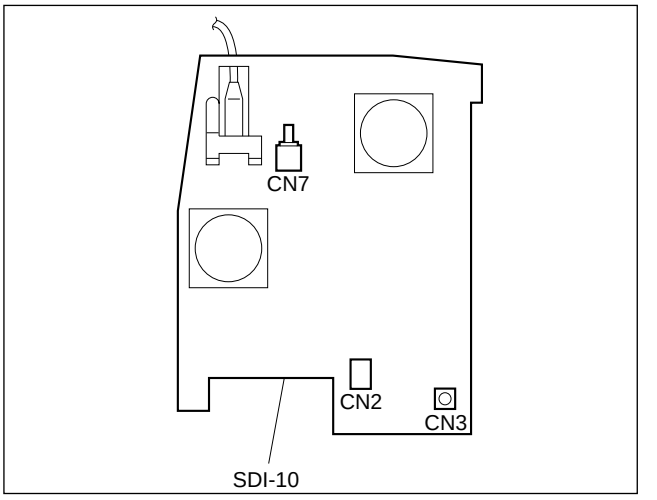
1. Remove the top and left side panels referring to Section 2-3.
2. Disconnect the optical connector cable (blue).

   Note

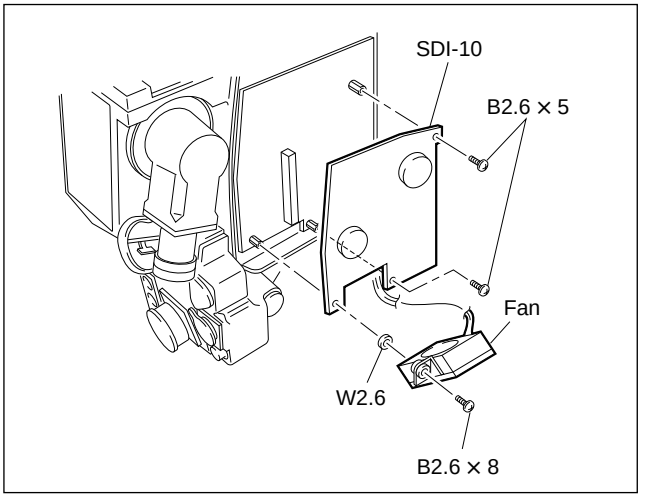
   The interconnection connector should be remain connected to the mate connector. To avoid the signal degradation, do not touch an exposed tip of the connector.



3. Disconnect the coaxial connectors CN3 and CN7, and CN2 on the SDI-10 board.



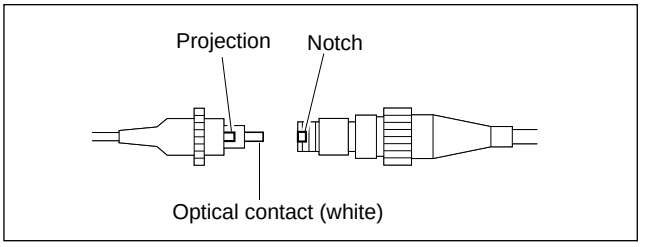
4. Remove the screw securing the fan. Remove the two screws to remove the SDI-10 board.



5. Install a new board in the reverese order of removal.

Notes at installation

- Before connecting the optical connector, clean the white optical contact at the tip of connector with alcohol.
- Align the projection of the connector with the notch of the interconnection connector in connecting.



2-10-6. Replacement of RX-28 Board

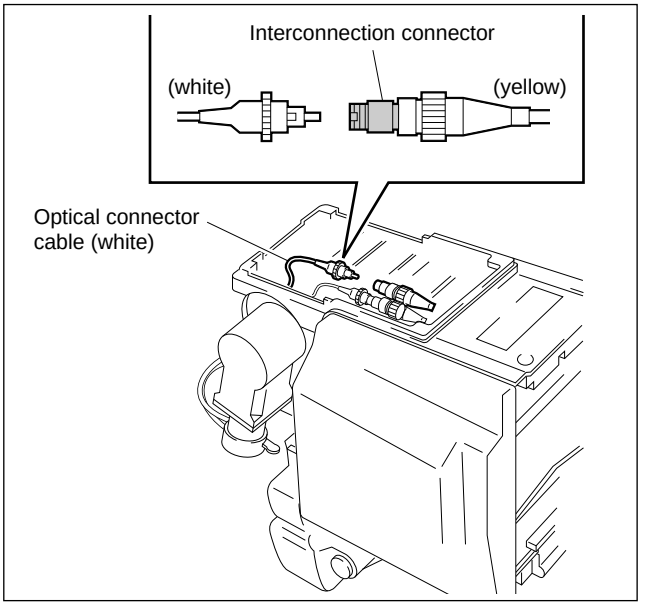
Notes

- Every electrical part mounted on the RX-28 board cannot be replaced. If there is any defective part, replace the board itself.
- Optical connector cables used in the unit are very fragile. So do not bend or yank in handling. This causes a break in the cable.
  When installing the optical connector cable in the unit, refer to Section 2-1-3.

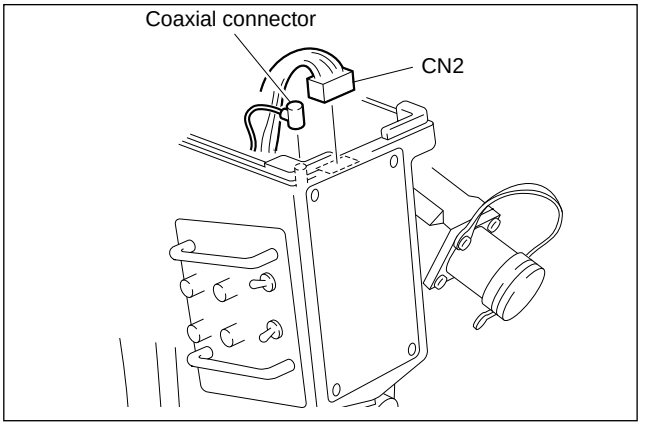
1. Remove the top panel referring to Section 2-3.
2. Remove the optical connector cable (white).

   Note

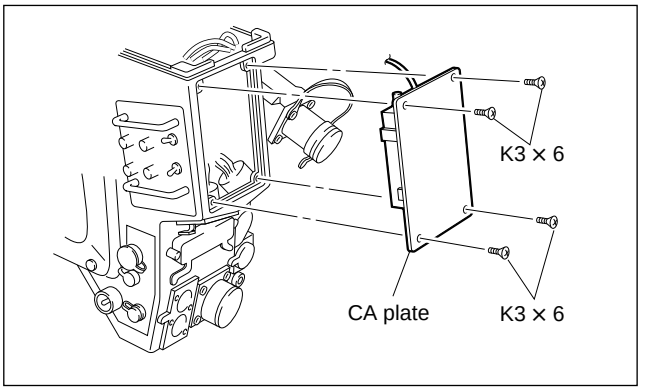
   The interconnection connector should be remain connected to the mate connector. To avoid the signal degradation, do not touch an exposed tip of the connector.



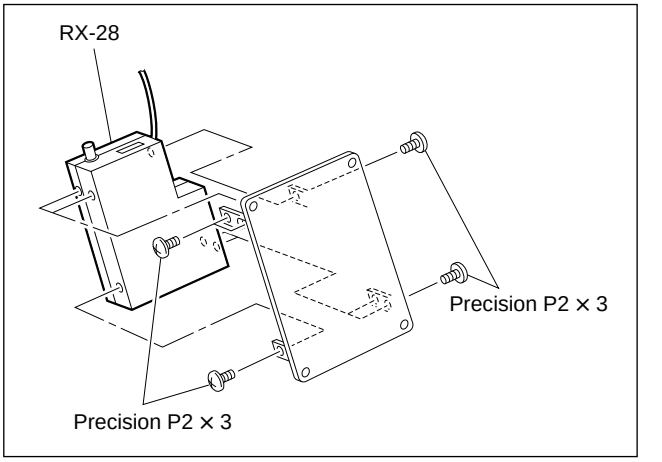
3. Remove the coaxial connector and CN2.



4. Remove the four screws to remove the CA plate.



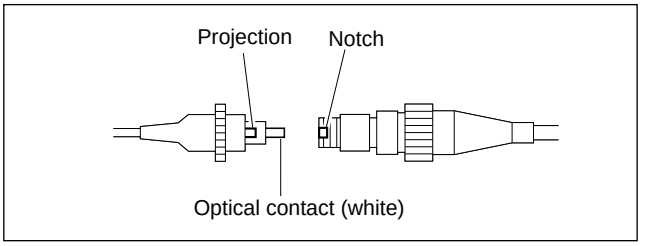
5. Remove the six screws to remove the RX-28 board.



6. Install a new board in the reverese order of removal.

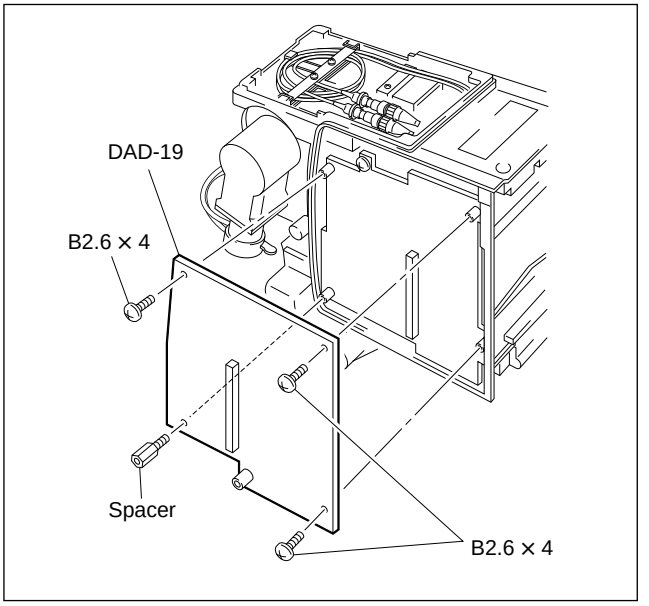
Notes at installation

- Before connecting the optical connector, clean the white optical contact at the tip of connector with alcohol.
- Align the projection of the connector with the notch of the interconnection connector in connecting.



2-10-7. Replacement of MB-573 Board

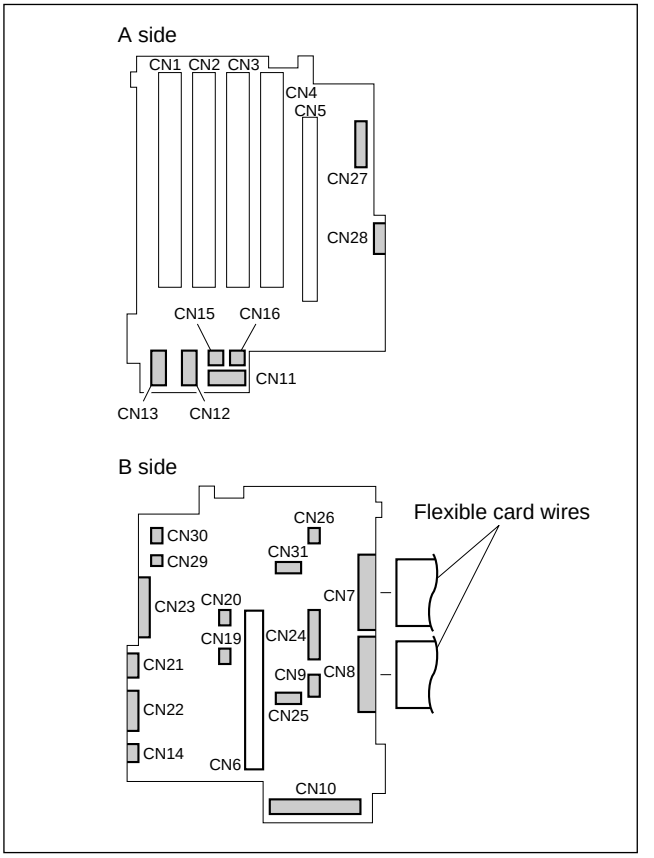
1. Peform the procedures 1 to 3 in Section 2-7-1 to remove the board rail.
2. Remove the DC/DC converter and AC/DC converter referring to Sections 2-8 and 2-9.
3. Remove the SDI-10 board referring to Section 2-10-5.
4. Remove the three screws and spacer to remove the DAD-19 board.



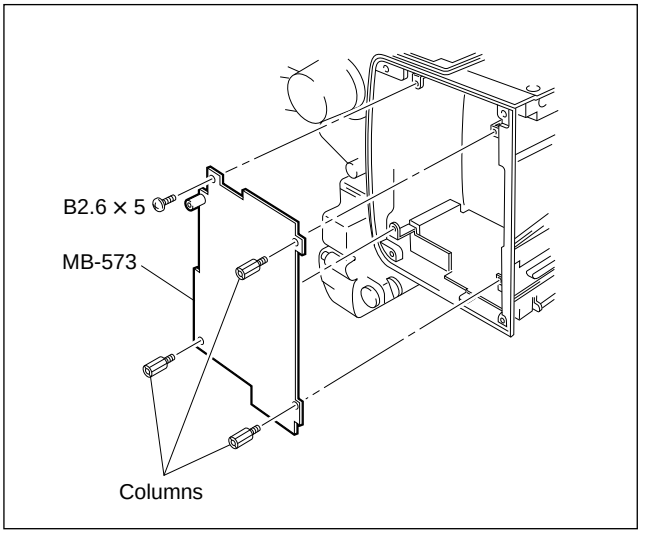
5. Disconnect the connectors and flexible card wires as shown below.

Note

Refer to Section 2-6 before disconnecting or connecting the flexible card wire.



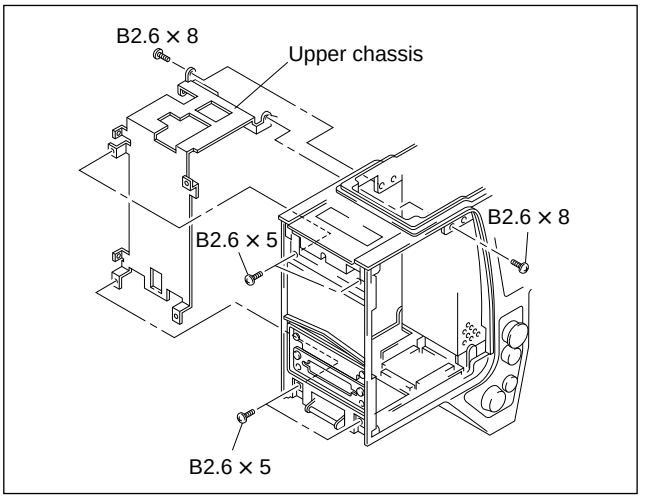
6. Remove the three columns and screw to remove the MB-573 board.



7. Install a new board in the reverse order of removal.

2-11. Replacement of 68-pin Connector

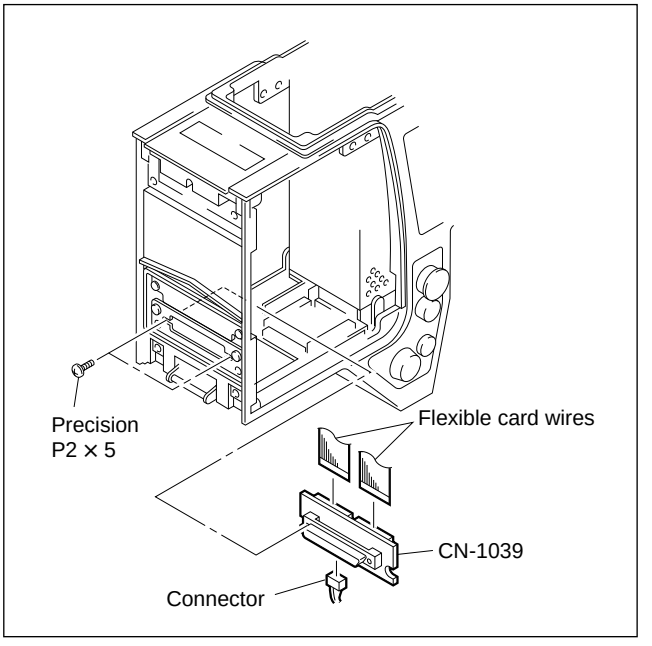
1. Remove the MB-573 board referring to Section 2-10-7.
2. Remove the six screws to remove the upper chassis.



3. Remove the two screws securing the CN-1039 board. Disconnect the two flexible card wires and connector from the CN-1039 board.

   Note

   Refer to Section 2-6 before disconnecting or connecting the flexible card wire.



4. Replace the CN-1039 board with the 68-pin connector mounted. Install it in the reverse order of removal.

2-12. Replacement of Optical Connector

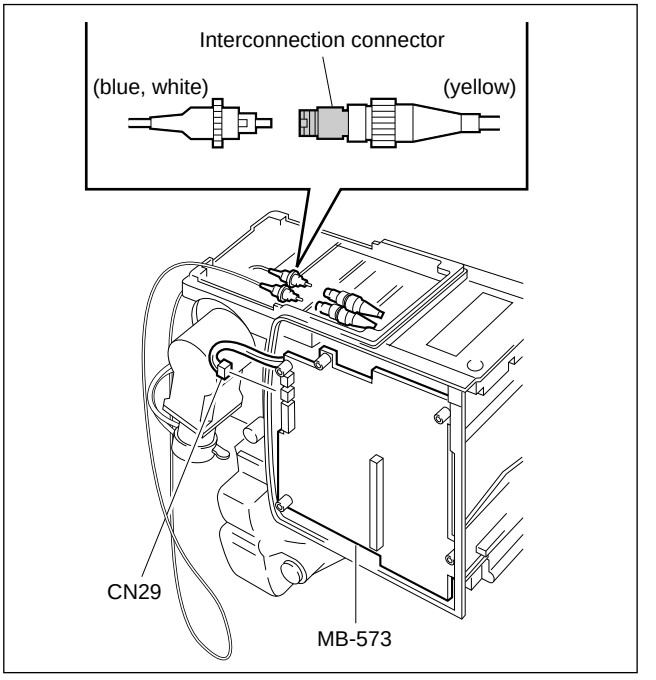
Note

Optical connector cables used in the unit are very fragile. So do not bend or yank in handling. This causes a break in the cable.
When installing the optical connector cable in the unit, refer to Section 2-1-3.

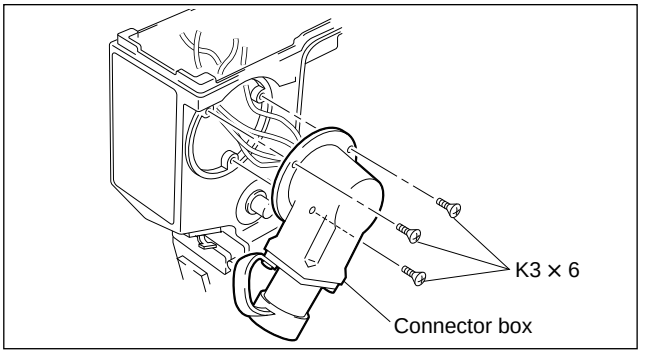
1. Perform procedures 1 to 4 in Section 2-10-7 to remove the DC/DC converter, AC/DC converter and SDI-10/DAD-19 boards.
2. Remove the connector CN29 from the MB-537 board. Disconnect the optical connector cable (white).

   Note

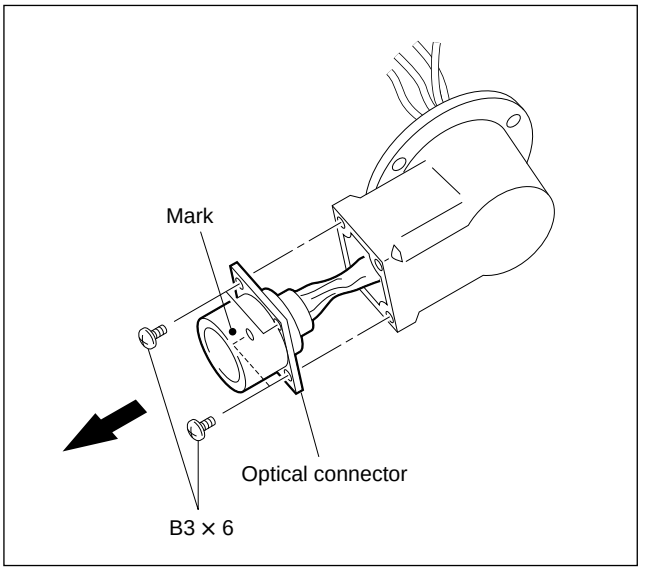
   The interconnection connector should be remain connected to the mate connector. To avoid the signal degradation, do not touch a an exposed tip of the connector.



3. Remove the three screws securing the connector box.



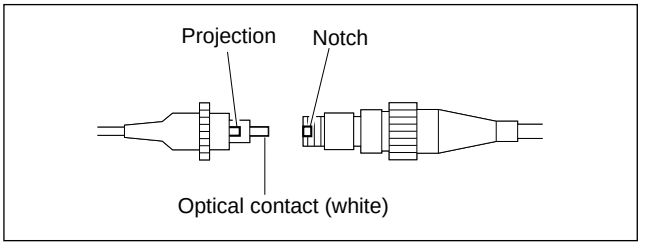
4. Remove the four screws and pull out the optical connector with harness.



5. Install a new connector in the reverse order of removal.

Notes at installation

- Install the optical connector into the connector box with care so that the mark on the connector faces up as shown in the figure of procedure 4.
- Uncap two caps at each tip of the new optical connector cables just before being connected to the mate connector. Before connecting, clean the tips of connector of the white contact with alcohol.
- Align the projection of the connector with the notch of the interconnection connector in connecting.

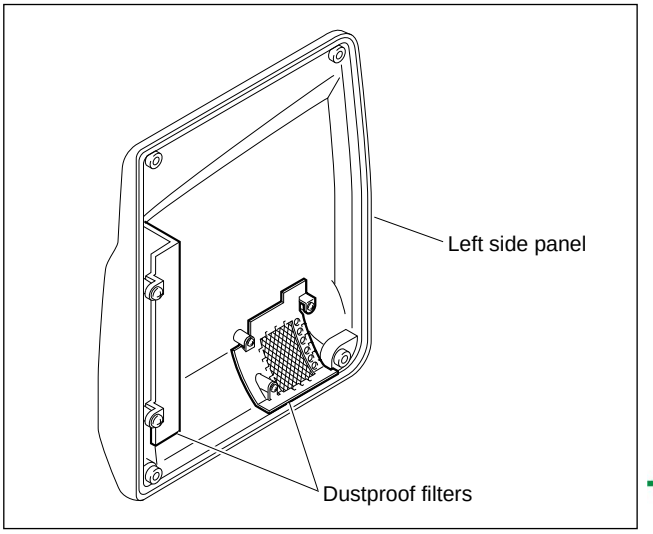


2-13. Cleaning of Dustproof Filter

Clean the dustproof filters periodically every two or three months. Clogged filter may cause trouble because the inside temperature of the unit will rise.

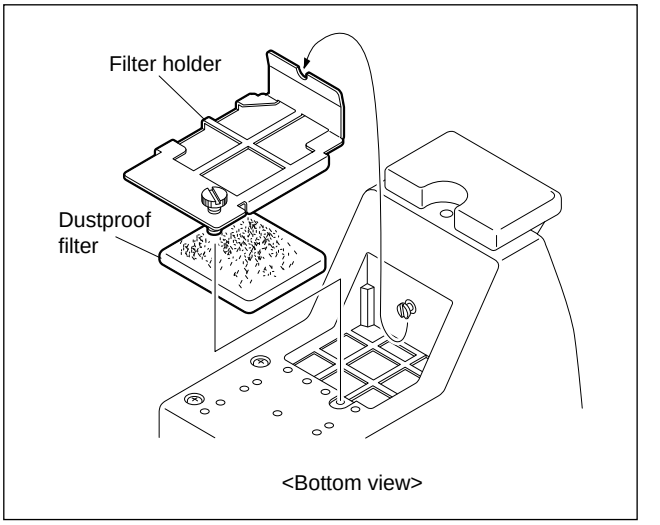
Left side panel

1. Loosen the four screws and open the left side panel.
2. Dust the dustproof filter each with a blower.



Bottom chassis

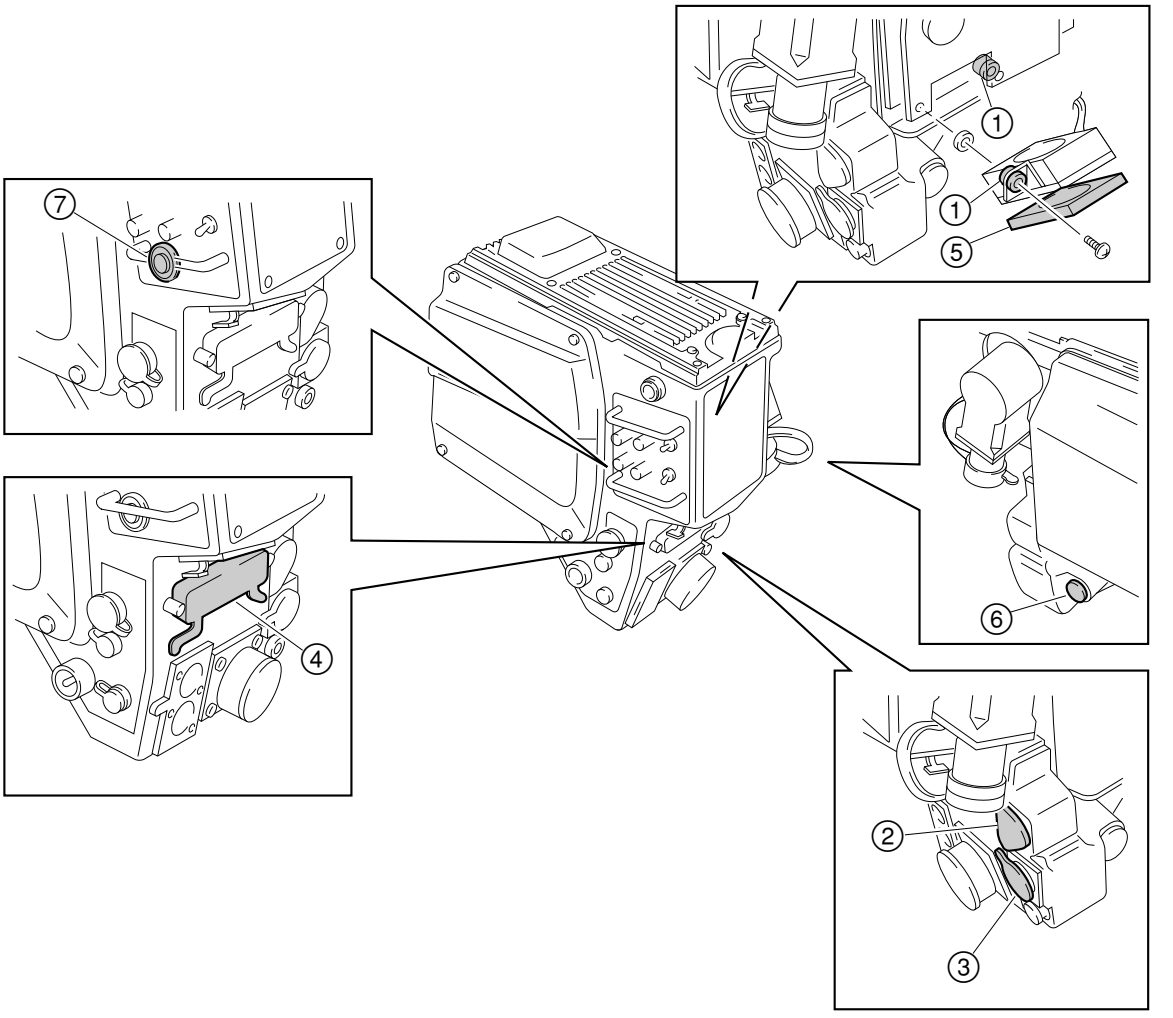
1. Detach the HDCA-750A from the HDC-750A.
2. Loosen the screw to remove the filter holder.
3. Wash with neutral detergent by your hand and dry it in a shade.



2-14. Periodic Replacement Part

The unit is equipped with two types of fan, the base chassis fan (P/N 1-698-775-1X) and SDI fan (P/N 1-698-774-1X). They are periodic replacement parts. It is recommendable to replace the fans every two years. Refer to Section 2-7 for details on replacement.
And the parts listed below are recommended replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

No.	Description	Sony P/N
①	BUSHING, RUBBER	3-175-712-0X
②	CONNECTOR, COVER	3-187-015-0X
③	CAP, CONNECTOR	3-605-338-0X
④	PROTECTOR, D-SUB	3-605-339-0X
⑤	FAN, CUSHION	3-605-546-0X
⑥	RUBBER (EA), DROP PROTECTION	3-724-730-0X
⑦	COVER (LARGE), SW	3-731-742-0X



2-15. Cleaning of Optical Connector

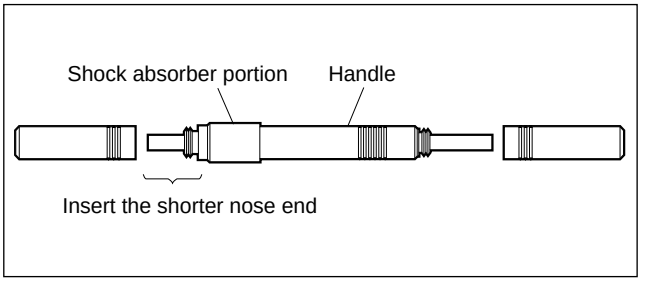
The photo-receptive condition of optical connector is displayed on the SDI/VTR Setup page of the maintenance menu. For details on the menu refer to Section 3 in the maintenance manual volume 1 attached to the camera. The attenuation of the photo-receptive level may cause transmission error between the camera and HDCU. In the case of attenuation, be sure to clean optical contact portions proceeding as follows. The optical contact portions exist in the optical connector on the camera or HDCU, and in the optical connector cables which are connected to the SDI or RX board.

Tools Required

- Alignment sleeve remover HC-001
  (for female connector)
  Sony P/N: J-6480-010-A

Note

Insert the shorter nose end when removing/installing the alignment sleeve.
Grasp not the shock absorber portion but the handle in use.

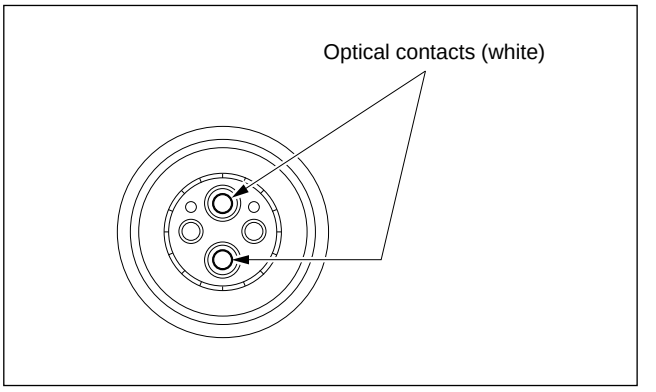


- Cotton swabs (commercially available)

Cleaning

Male connector

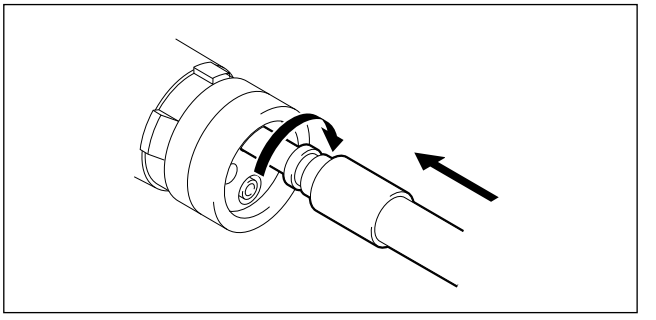
Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



Female connector

The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the alignment sleeve in advance. Proceed as follows.

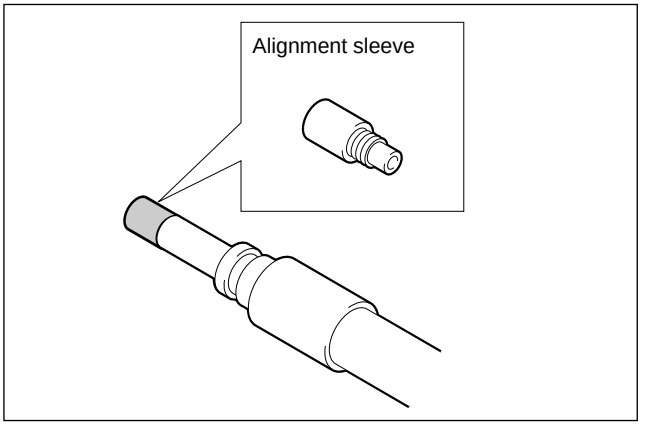
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



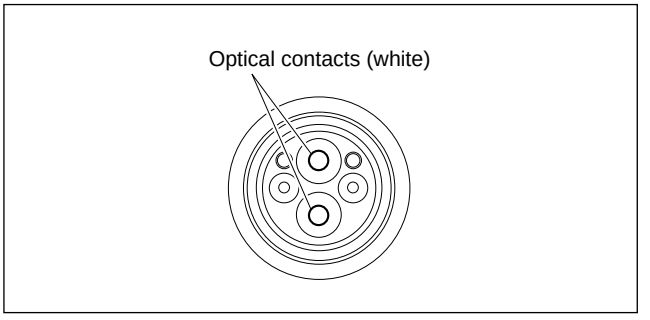
2. When the turn stops, pull out the remover in the straight line forcedly.

Note

The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover. Great care should be taken so as not to lose or damage the alignment sleeve.
(Alignment sleeve: Sony P/N 9-980-074-01)



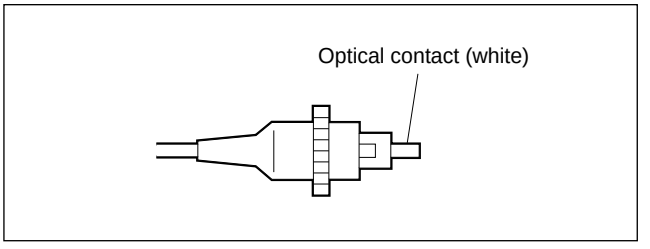
3. Clean the tip of the white optical contacts by a cotton swab moistened with alcohol.



4. Insert the remover with the alignment sleeve attached to its tip, and push it until it clicks.
5. Rotate the remover counterclockwise to install the alignment sleeve, and extract the remover.

Optical connector cable

After replacing the optical connector of the camera or HDCU, or replacing the SDI-10/RX-28 board, clean the tip of the white optical contact of the optical connector cable by a cotton swab moistened with alcohol.



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Section 3
Electrical Alignment

This section is comprised of the following two adjustment items;

- Items required when repairing or replacing a circuit board. (Described in Sections 3-2 to 3-4.)
- Item regarding audio adjustment. (Described in Section 3-5.)

3-1. Preparation

3-1-1. Equipment Required

Measuring Equipment

- Oscilloscope (Band width 300 MHz or more)
  Tektronix 2465B or equivalent
- HDTV analog waveform monitor
  Tektronix 1735HD/1730HD or equivalent
- HDTV digital waveform monitor
  Tektronix WFM1125 or equivalent
- Audio Generator
  Tektronix SG-5010 or equivalent
- Audio Analyzer
  Tektronix AA501A (OP.02) or equivalent
- Digital to Analog Converter

Peripheral Equipment

- HDVS camera system
  HDC-750A
  HDCU-700A (with HKCU-702 installed)
  MSU-700 (with HKCF-700 installed)
- AC adaptor
  AC-550/550CE

Fixtures

- Extension board EX-512
  Sony P/N: A-8273-247-A
- Extension board BKP-7900*
  (To extend plug-in board for HDCU-700A)
- Camera cable CCZRGB-3* (3m)
  (Used when monitoring video outputs)

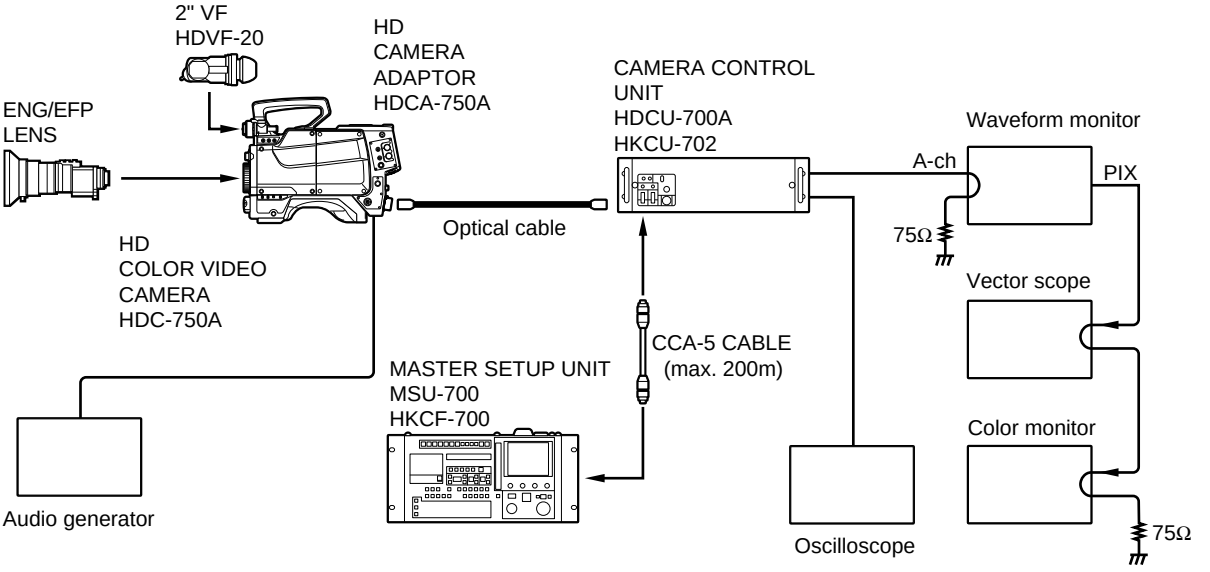
*Please order through the sales channel.

3-1-2. Notes on Adjustment

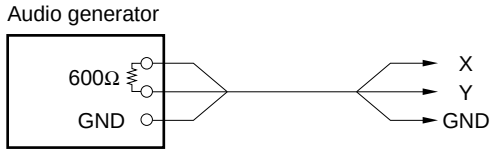
- All measuring equipment shall be completely calibrated.
- As for initial settings before beginning adjustment, refer to Section 3-1-4.
- Alignment for HDC-750A, HDCU-700A and MSU-700 shall be completed.

3-1-3. Connection

For general adjustments



For audio adjustments



3-1-4. Initial Settings

HDCA-750A

Note

When switching the following switches from a customer-set position, it is recommended to record the setting state of the customer in the table below. After adjustment is complete, be sure to return the switches to their customer-set position.

Board	Switch	Setting during adjustment	Customer-set position
AU-203	S2	CM (CARBON)	
	S3	CM (CARBON)	
	S4	0	
	S5	0	
	S6	0	
	S7-1	OFF	
	S7-2	OFF	
	S7-3	OFF	
	S7-4	ON	
	S8-1	OFF	
	S8-2	OFF	
	S8-3	OFF	
	S8-4	OFF	

HDC-750A

- Side panel (upper side)
  Y/RGB switch → Y
- Make the following setting using the setup menu.
  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: Cable COMP → Off

MSU-700 Operation Panel

- CAM POWER/Signal output select buttons
  ALL button → OFF (dark)
  CAM PW button → ON (lit)
  VF PW button → ON (lit)
  TEST 1 button → OFF (dark)
  TEST 2 button → OFF (dark)
  BARS button → OFF (dark)
  CLOSE button → ON (lit)
- CAM/CCU Function ON/OFF buttons
  KNEE OFF button → OFF (lit)
  DETAIL OFF button → OFF (lit)
  LVL DEP OFF button → OFF (lit)
  DETAIL OFF button → OFF (lit)
  MATRIX OFF button → OFF (lit)
  AUTO KNEE button → OFF (dark)
  SKIN DETAIL button → OFF (dark)
- Others
  GAMMA OFF button → ON (dark)
  MASTER GAIN button → 0 (0 dB)
  FILTER button (ND) → 1 (lit)
  FILTER button (CC) → B (lit)
  ECS/SHUTTER ON button → OFF (dark)

3-2. SG-226 Board Adjustment

3-2-1. Character Indication Positioning Adjustment

Equipment: Viewfinder

Preparations

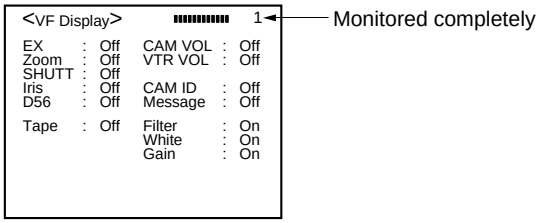
- Set the setup menu as follows.
  MENU: Operation
  PAGE: Marker
  ITEM: 4:3 Frame → On

  PAGE: VF Setup
  ITEM: VF Scan → 4:3

- VF DISP switch/camera side panel → ON

Adjustment Procedures

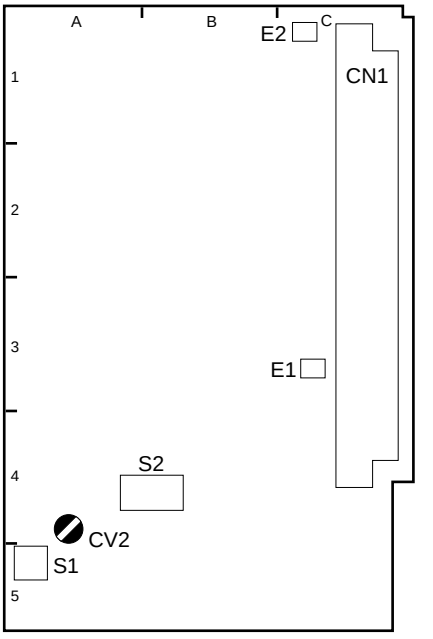
1. Adjustment Point: ⊘CV2/SG-226
   Specification: Numeral character displayed at the top-right of the screen can be monitored completely.



<VF Screen>

Resetting after Adjustment

- Return the menu to its previous state.



SG-226 BOARD (A SIDE)

3-3. VDA-31A Board Adjustment

Preparations

- Setting for MSU-700
  MASTER GAIN → 0 dB
  KNEE OFF button → OFF (lit)
- Extend the VDA-31A board.
- Set the setup menu as follows.
  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: Output Signal → RGB

  MENU: SYS Config
  PAGE: Others
  ITEM: CHU Color Bars → On

3-3-1. Input Level Check

Equipment: Oscilloscope

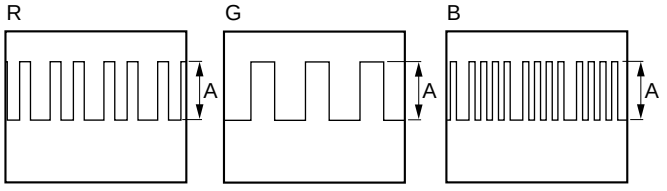
Procedure

- Check levels for R-ch, G-ch and B-ch as follows.

	Test Point
R-ch	TP18/extension board
G-ch	TP12/extension board
B-ch	TP6/extension board

Specification: A = 700 ±7 mVp-p

If out of specifications, be sure to readjust the IE-44 board (of camera).



3-3-2. RGB Level Adjustment

Equipment: Analog waveform monitor

Preparations

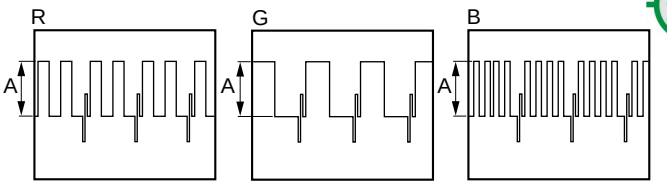
- Be sure to complete Section 3-3-1 “Input Level Check”.
- Connect the waveform monitor to the VTR connector of the unit.
- Terminate the waveform monitor with 75Ω.

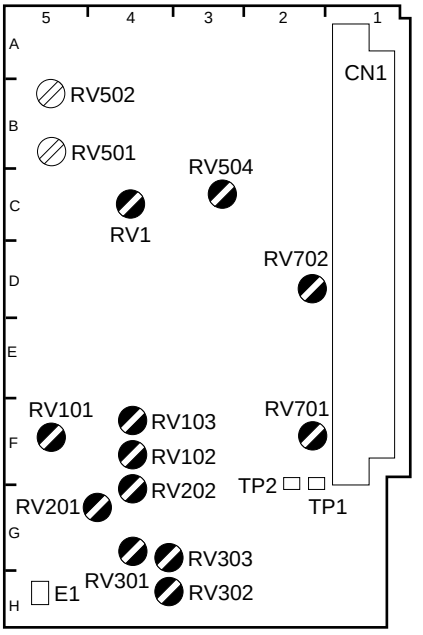
Adjustment Procedure

- Adjust levels for R-ch, G-ch and B-ch as follows.

	Test Point/VTR connector	Adjustment Point/VDA-31A
R-ch	R/P_R OUT (pin 5) R/P_R GND (pin 6)	⊘RV101 (on DU-24 board)
G-ch	G/Y OUT (pin 4) G/Y GND (pin 3)	⊘RV201
B-ch	B/P_B OUT (pin 7) B/P_B OUT (pin 8)	⊘RV301 (on DU-24 board)

Specification: A = 700 ±7 mVp-p





VDA-31A BOARD (A SIDE)

3-3-3. Y/P_B/P_R Level Adjustment

Equipment: Analog waveform monitor

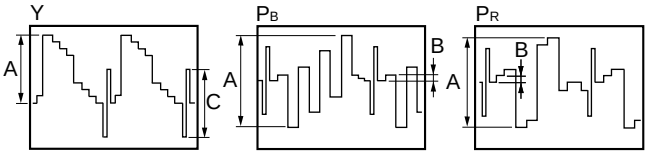
Preparations

- Be sure to complete Section 3-3-1 “Input Level Check”.
- Set the setup menu as follows.
  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: Output Signal → YPbPr
- Connect the waveform monitor to the VTR connector of the unit.
- Terminate the waveform monitor with 75Ω.

Adjustment Procedures

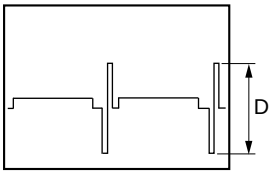
1. Adjust levels for Y-ch, P_B-ch and P_R-ch as follows.

	Test Point /VTRconnector	Adjustment Point/VDA-31A	Specification
Y-ch (GAIN)	G/Y OUT (pin 4) G/Y GND (pin 3)	⊘RV202	A = 700 ±7 mV p-p
P_B-ch (GAIN)	B/P_B OUT (pin 7) B/P_B GND (pin 8)	⊘RV303	A = 700 ±7 mV p-p
P_B-ch (OFFSET)		⊘RV302	B = 0 ±5 mV
P_R-ch (GAIN)	R/P_R OUT (pin 5) R/P_R GND (pin 6)	⊘RV103	A = 700 ±7 mV p-p
P_R-ch (OFFSET)		⊘RV102	B = 0 ±5 mV
SYNC1 (GAIN)	G/Y OUT (pin 4) G/Y GND (pin 3)	⊘RV701	C = 600 ±6 mV



2. Set the setup menu as follows.
   MENU: Maintenance
   PAGE: SDI/VTR Setup
   ITEM: CN Output → RET

3. SYNC2 Gain Adjustment
   Test Points: G/Y OUT (pin 4) , G/Y GND (pin 3) /VTR connector
   Adjustment Point: ⊘RV702/VDA-31A
   Specification: D = 600 ± 6 mV



Resetting after Adjustment

- Return the menu setting to its previous state.

3-3-4. Character Offset Level Adjustment

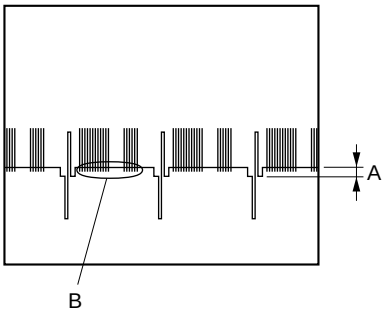
Equipment: Analog waveform monitor
Test Point: TEST OUT connector (camera)

Preparations

- Connect the waveform monitor to the TEST OUT connector of the unit.
- Close the lens iris.
- VF DISP switch/camera side panel → ON
- Setting for MSU-700
  MASTER BLACK control → 0

Adjustment Procedure

Adjustment Point: ⊘RV1/VDA-31A
Specification: Adjust so that no level difference appears at portion A and that the overshoot at portion B is minimized.



3-3-5. Character Level Adjustment

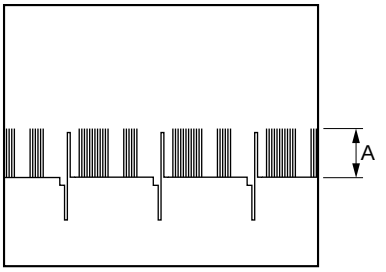
Equipment: Analog waveform monitor
Test Point: TEST OUT connector (camera)

Preparations

- Connect the waveform monitor to the TEST OUT connector of the unit.
- Setting for MSU-700
  CLOSE button → ON (lit)
- VF DISP switch/camera side panel → ON

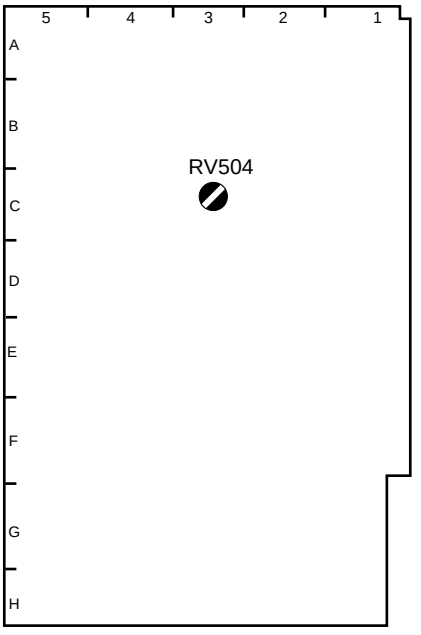
Adjustment Procedure

Adjustment Point: ⊘RV504/VDA-31A
Specification: A = 350 ±10 mV



Resetting after Adjustment

- Return the switches to their previous positions.



VDA-31A BOARD (A SIDE)

3-4. DAD-19 Board Adjustment

3-4-1. A/D Gain, Clamp Level Adjustement

Equipment: Digital waveform monitor, or
Digital-to-Analog converter + Analog waveform monitor

Note

This section explains adjustment through the use of a digital waveform monitor. A digital waveform monitor can replace an analog waveform monitor together with digital-to-analog converter.

Preparations

1. Disconnect the optical cable from the camera.
2. Connect the AC-550/550CE to the DC IN connector of the unit to derive power.
3. Set the setup menu as follows.
   MENU: Maintenance
   PAGE: SDI/VTR Setup
   ITEM: Serial Output → On
4. Connect the digital waveform monitor to the SERIAL OUT connector of the unit.
5. Set the setup menu as follows.
   MENU: SYS Config
   PAGE: Others
   ITEM: CHU Color Bars → On

Adjustment Procedures

1. Y Clamp Level Adjustment
   Test Point: Y OUT/waveform monitor
   Adjustment Point: ⊘RV3/DAD-19
   Specification: A = 0 ±2 mV

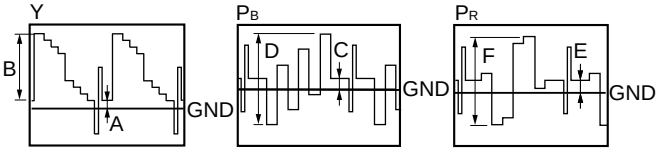
2. Y A/D Gain Adjustment
   Test Point: Y OUT/waveform monitor
   Adjustment Point: ⊘RV1/DAD-19
   Specification: B = 700 ±4 mV

3. P_B Clamp Level Adjustment
   Test Point: P_B OUT/waveform monitor
   Adjustment Point: ⊘RV9/DAD-19
   Specification: C = 0 ±2 mV

4. P_B A/D Gain Adjustment
   Test Point: P_B OUT/waveform monitor
   Adjustment Point: ⊘RV8/DAD-19
   Specification: D = 700 ± 4 mV

5. P_R Clamp Level Adjustment
   Test Point: P_R OUT/waveform monitor
   Adjustment Point: ⊘RV6/DAD-19
   Specification: E = 0 ± 2 mV

6. P_R A/D Gain Adjustment
   Test Point: P_R OUT/waveform monitor
   Adjustment Point: ⊘RV5/DAD-19
   Specification: F = 700 ± 4 mV



For your information

If both of the digital waveform monitor and digital-to-analog converter are not available, proceed as follows.

Equipment: Oscilloscope
HDCU-700A with HKCU-702 installed
MSU-700 (or RCP)

Preparations

- Setting for MSU-700
  BARS button → OFF (dark)
- S1-5/ADA-50 (HKCU-702) → OFF (Y/P_B/P_R)
- Set the setup menu as follows.
  MENU: SYS Config
  PAGE: Others
  ITEM: CHU Color Bars → On

Adjustment Procedure

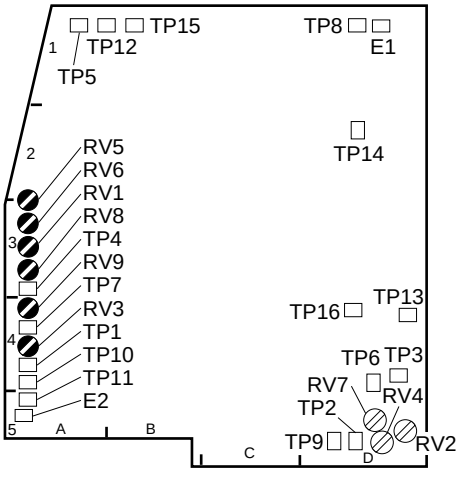
Adjust the clamp level and gain for each channel observing the following test point.
The controls to be adjusted and specifications are the same as when using the digital waveform monitor.

	Test Point
Y-ch	G/Y-1 connector/ADA-50 (HKCU-702)
P_B-ch	B/P_B-1 connector/ADA-50 (HKCU-702)
P_R-ch	R/P_R-1 connector/ADA-50 (HKCU-702)

Resetting after Adjustment

- Set the setup menu as follows.
  MENU: SYS Config
  PAGE: Others
  ITEM: CHU Color Bars → Off

  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: Serial Output → Off



DAD-19 BOARD (A SIDE)

3-4-2. RET VIDEO D/A Gain Adjustment

Equipmetnt: Analog waveform monitor

Preparations

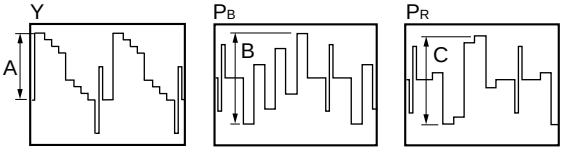
- Connect between the HD SDI OUT3 and HD SDI RET1 connectors on the SDI-11 board of the HDCU-700A.
- Setting for MSU-700
  BARS button → ON (lit)
- Set the setup menu as follows.
  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: CN Output → RET
- Connect the waveform monitor to the VTR connector of the unit.

Adjustment Procedures

1. Y Level Adjustment
   Test Point: Y OUT/waveform monitor
   Adjustment Point: ⊘RV2/DAD-19
   Specification: A = 700 ±7 mV

2. P_B Level Adjustment
   Test Point: P_B OUT/waveform monitor
   Adjustment Point: ⊘RV7/DAD-19
   Specification: B = 700 ±7 mV

3. P_R Level Adjustment
   Test Point: P_R OUT/waveform monitor
   Adjustment Point: ⊘RV4/DAD-19
   Specification: C = 700 ±7 mV



Resetting after Adjustment

- Set the setup menu as follows.
  MENU: Maintenance
  PAGE: SDI/VTR Setup
  ITEM: CN Output → Main

Note

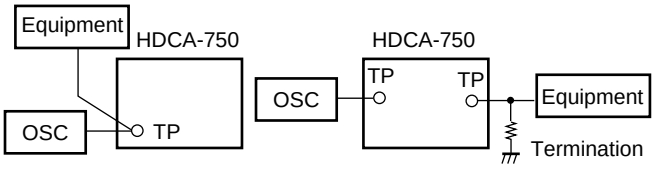
TP2/DAD-19: RET Y (700 mV)
TP3/DAD-19: RET P_R (700 mV)
TP6/DAD-19: RET P_B (700 mV)

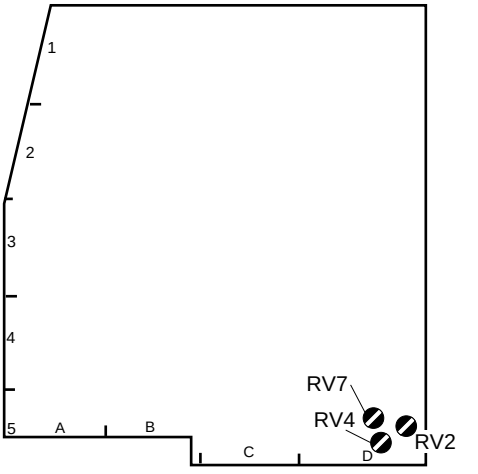
3-5. Audio System Adjustment

Note

- Properly connect measuring equipment as shown in the figure when adjusting.

Commection example





DAD-19 BOARD (A SIDE)

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3-5-1. INCOM 1 Side Tone Adjustment

Note

This is temporary adjustment for repair. In fact, perform adjustment to suit the customer's preferences.

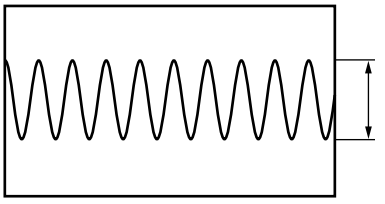
Preparations

- Extend the AU-203 board with the extension board EX-512.
- Extend the AT-103 board of the HDCU with the extension board BKP-7900.
- S16/AT-103 → 0 dB
- INCOM MIC 1 ON/OFF switch → ON

Adjustment Procedures

1. Feed a 1 kHz sine wave signal from the audio generator to pins A57 (X), B57 (Y) and A56 (G) on the extension board BKP-7900 .

2. Test Point: TP65/EX-512
   Adjustment Point: ⊘Output level control/audio generator
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



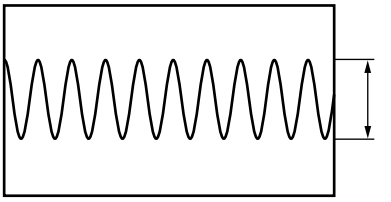
3. Test Point: TP35/EX-512
   Adjustment Point: ⊘INCOM 1 level control/camera
   Specification: 2.2 ±0.1 Vp-p (0 ±0.4 dBu)

4. Disconnect the audio generator.

5. S2/AU-203 → CM
   S4/AU-203 → 0

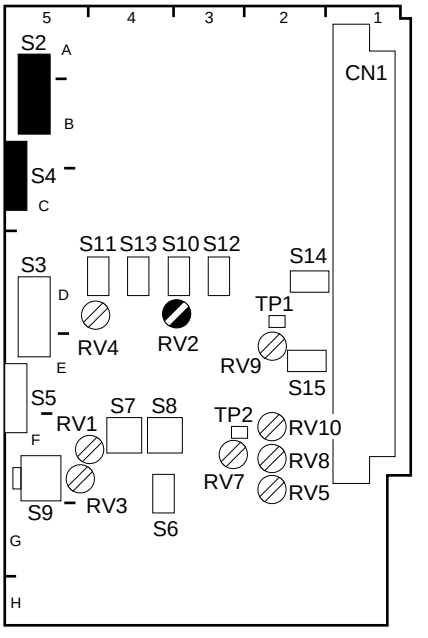
6. Feed a 1 kHz, 220 mVp-p sine wave signal from the audio generator to pins 26 (X), 25 (Y) and 24 (G) on the EX-512 board .

7. Test Point: TP35/EX-512
   Adjustment Point: ⊘RV2/AU-203
   Specification: 220 ±10 mVp-p



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.



AU-203 BOARD (A SIDE)

3-5-2. RTS 1 CANCEL Adjustment

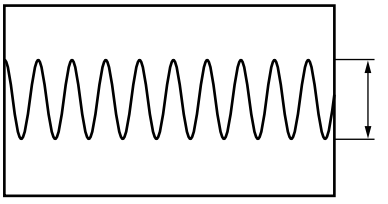
Preparations

- Extend the AU-203 board with the extension board EX-512.
- Extend the AT-103 board of the HDCU with the extension board BKP-7900.
- S16/AT-103 → 0 dB
- S14/AU-203 → RTS

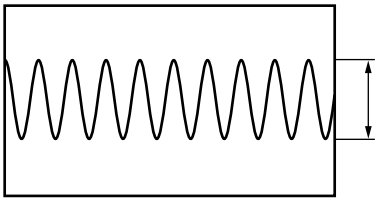
Adjustment Procedures

1. Feed a 1 kHz sine wave signal from the audio generator to pins A57 (X), B57 (Y) and A56 (G) on the extension board BKP-7900.

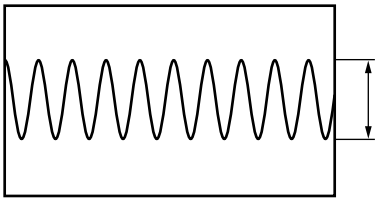
2. Test Point: TP65/EX-512
   Adjustment Point: ⊘Output level control/ audio generator
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



3. Test Point: TP35/EX-512
   Adjustment Point: ⊘INCOM 1 level control/camera
   Specification: 2.2 ±0.1 Vp-p (0 ±0.4 dBu)



4. Test Point: TP1/AU-203
   Adjustment Point: ⊘RV9/AU-203
   Specification: Minimize the amplitude. (20 mVp-p or below)



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.

3-5-3. INCOM 2 Side Tone Adjustment

Note

This is temporary adjustment for repair. In fact, perform adjustment to suit the customer's preferences.

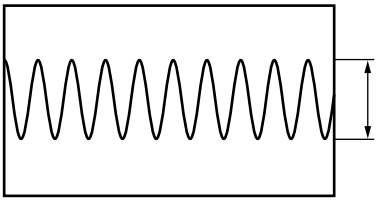
Preparations

- Extend the AU-203 board with the extension board EX-512.
- Extend the AT-103 board of the HDCU with the extension board BKP-7900.
- S17/AT-103 →0 dB
- INCOM MIC 2 ON/OFF switch → ON

Adjustment Procedures

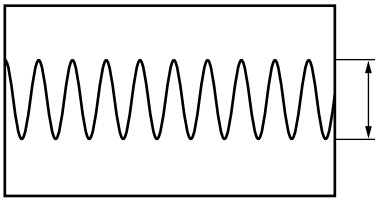
1. Feed a 1 kHz sine wave signal from the audio generator to pins A55 (X), B55 (Y) and A54 (G) on the extension board BKP-7900.

2. Test Point: TP63/EX-512
   Adjustment Point: ⊘Output level control/ audio generator
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



3. Test Point: TP38/EX-512
   Adjustment Point: ⊘INCOM 2 level control/camera
   Specification: 2.2 ±0.1 Vp-p (0 ±0.4 dBu)

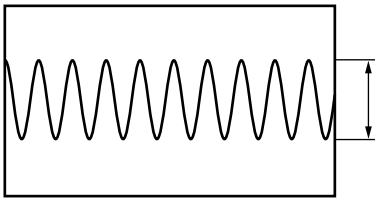
4. Disconnect the audio generator.



5. S3/AU-203 → CM
   S5/AU-203 → 0

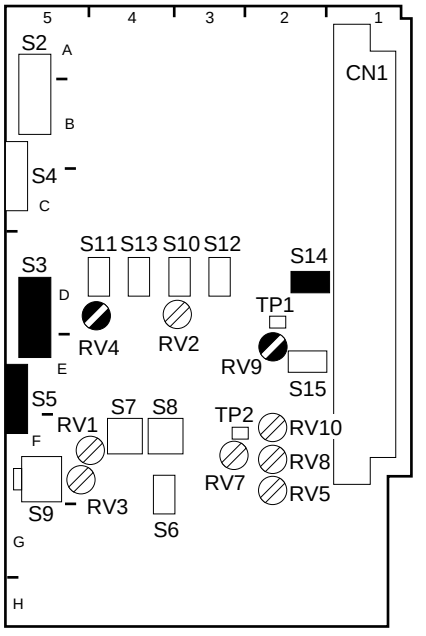
6. Feed a 1 kHz, 220 mVp-p sine wave signal from the audio generator to pins 27 (X), 28 (Y) and 29 (G) on the EX-512 board.

7. Test Point: TP38/EX-512
   Adjustment Point: ⊘RV4/AU-203
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.



AU-203 BOARD (A SIDE)

3-5-4. RTS 2 CANCEL Adjustment

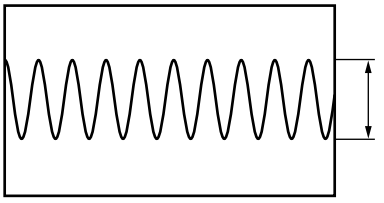
Preparations

- Extend the AU-203 board with the extension board EX-512.
- Extend the AT-103 board of the HDCU with the extension board BKP-7900.
- S17/AT-103 →0 dB
- S14/AU-203 → RTS

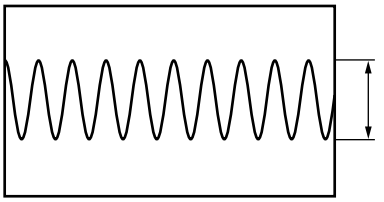
Adjustment Procedures

1. Feed a 1 kHz sine wave signal from the audio generator to pins A55 (X), B55 (Y) and A54 (G) on the extension board BKP-7900.

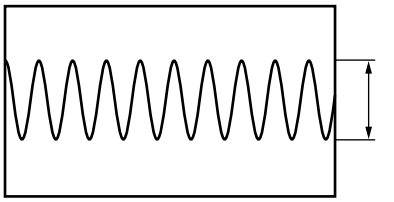
2. Test Point: TP63/EX-512
   Adjustment Point: ⊘Output level control/ audio generator
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



3. Test Point: TP38/EX-512
   Adjustment Point: ⊘INCOM 2 level control/camera
   Specification: 2.2 ±0.1 Vp-p (0 ±0.4 dBu)

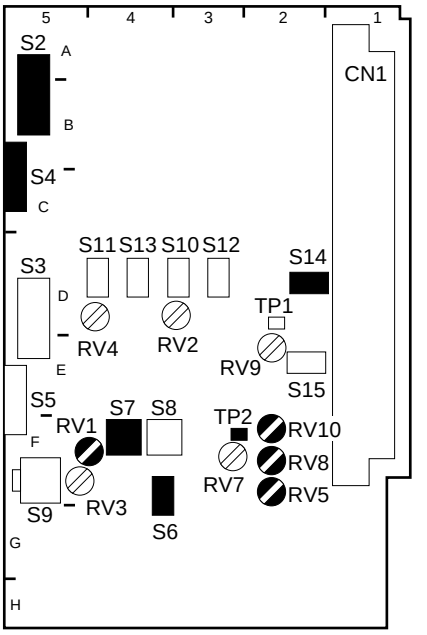


4. Test Point: TP2/AU-203
   Adjustment Point: ⊘RV10/AU-203
   Specification: Minimize the amplitude. (20 mVp-p or below)



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.



AU-203 BOARD (A SIDE)

3-5-5. TRACKER (T) Level Adjustment

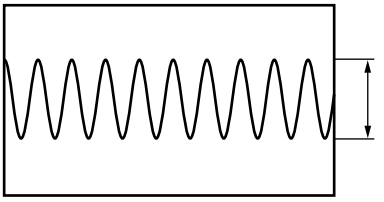
Preparations

- Extend the AU-203 board with the extension board EX-512.
- S6/AU-203 → 0

Adjustment Procedures

1. Feed a 1 kHz, 220 mVp-p (−20 dBu) sine wave signal from the audio generator to pins 32 (X), 31 (Y) and 30 (G) on the EX-512 board.

2. Test Point: TP73/EX-512
   Adjustment Point: ⊘RV1/AU-203
   Specification: 220 ±10 mVp-p
   (−20.0 ±0.4 dBu)



Resetting after Adjustment

- After adjustment is complete, return the switches to their previous positions.

3-5-6. VTR INCOM Level Adjustment

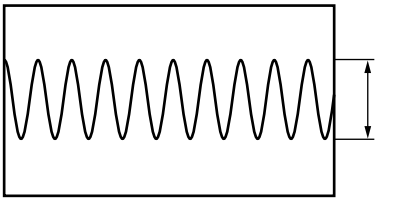
Preparations

- Extend the AU-203 board with the extension board EX-512.
- S2/AU-203 → CM
- S4/AU-203 → 0

Adjustment Procedures

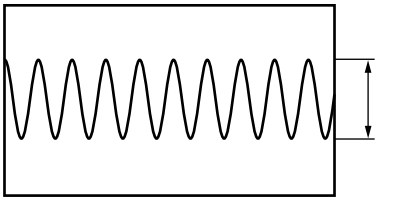
1. Feed a 1 kHz, 220 mVp-p (−20 dBu) sine wave signal from the audio generator to pins 26 (X), 25 (Y) and 24 (G) on the EX-512 board .

2. VTR OUT Level Adjustment
   Test Point: TP11/EX-512
   Adjustment Point: ⊘RV5/AU-203
   Specification: 220 ±10 mVp-p
   (−20.0 ±0.4 dBu)



3. S7-4/AU-203 → ON

4. VTR BALANCE Adjustment
   Test Point: TP78/EX-512
   Adjustment Point: ⊘RV8/AU-203
   Specification: Minimize the amplitude.
   (30 mVp-p or below)



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.

3-5-7. VTR MONITOR Level Adjustment

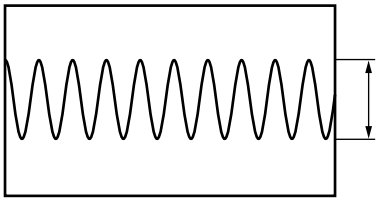
Preparations

- Extend the AU-203 board with the extension board EX-512.
- Extend the AT-103 board of the HDCU with the extension board BKP-7900.
- S17/AT-103 → 0 dB
- INCOM MIC 2 ON/OFF switch → ON
- S9/AU-203 → ON
- S8-2/AU-203 → ON

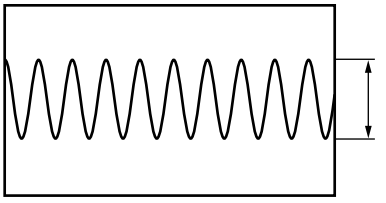
Adjustment Procedures

1. Feed a 1 kHz, sine wave signal from the audio generator to pins A55 (X), B55 (Y) and A54 (G) on the extension board BKP-7900.

2. Test Point: TP63/EX-512
   Adjustment Point: ◓Output level control/audio generator
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



3. Test Point: TP38/EX-512
   Adjustment Point: ◓INCOM 2 level control/camera
   Specification: 2.2 ±0.1 Vp-p (0 ±0.4 dBu)

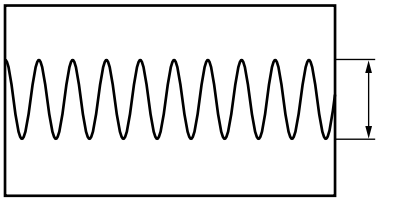


4. Disconnect the audio generator.

5. S3/AU-203 → CM
   S5/AU-203 → 0

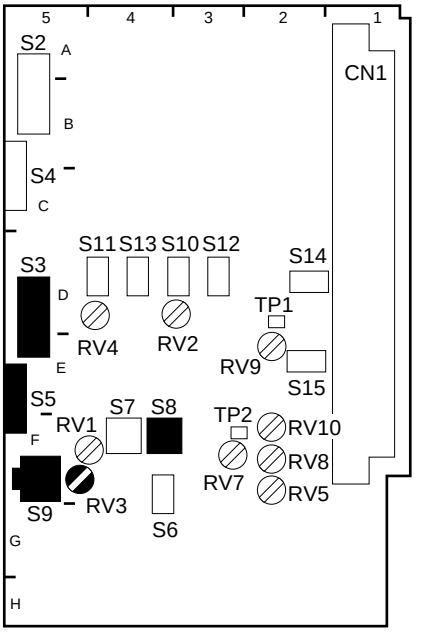
6. Feed a 1 kHz, 220 mVp-p (−20 dBu) sine wave signal from the audio generator to pins 27 (X), 28 (Y) and 29 (G) on the EX-512 board.

7. Test Point: TP38/EX-512
   Adjustment Point: ◓RV3/AU-203
   Specification: 220 ±10 mVp-p (−20.0 ±0.4 dBu)



Resetting after Adjustment

- After adjustments are complete, return the switches to their previous positions.



AU-203 BOARD (A SIDE)

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